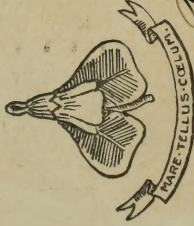




THE BERWICKSHIRE NATURALISTS' CLUB.

(The 22d of September, 1831).



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*The reply to yours of 6th inst. - this vol.
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 the early months of the ensuing year
 say March to May.*

J. B. Duncan.

S. 16. A12.





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Faithfully Yours James Hardy

HISTORY
OF THE
BERWICKSHIRE
NATURALISTS' CLUB.

INSTITUTED SEPTEMBER 22, 1831.

"MARE ET TELLUS, ET, QUOD TEGIT OMNIA, CÆLUM."

1887—1889.



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Recd
6 OCT. 91

20 APR 1950



PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

Address delivered to the Berwickshire Naturalists' Club, at Berwick, October 12th, 1887. By the Rev. DAVID PAUL, M.A., Roxburgh, President.

GENTLEMEN,

I HAVE to thank you first of all for the honour I have enjoyed as your President during the year that expires with our meeting to-day. It is no small distinction to be even for a short time at the head of a Club so old, so well known, so large in its membership, and numbering in its ranks so many men of scientific attainment. I have greatly appreciated the honour, and I retire into a private position again with a lively sense of gratitude for your goodness in bestowing it.

I have been relieved by the kindness of the Secretary from the duty which otherwise would have devolved upon me, of chronicling our doings and discoveries at our various meetings. No one can do that so well as he can, and the Club will gain by my leaving it alone. I am thus set free to choose a topic of address for myself. And I have selected the subject of Fungology for two reasons, partly because it is one of which I happen to know something, and partly because it is one which has not received from the Club all the attention it deserves. I may say, however, at once, that I am not going into the matter deeply or abstrusely; I am not going to lecture on any of its difficult problems, or bring

forth any novel theories, but will confine myself mainly to observations on the interest of the subject, on the method to be pursued in studying it, and on the desirability of more of us applying ourselves to it. This will be the most useful and practical way perhaps in which I can deal with it to-day.

In looking over our volumes of printed Transactions, I find the notices of Fungi to be very scanty. But before our Club was instituted, Dr. Johnston, its founder, had in his "Flora of Berwick-upon-Tweed," published in 1831, included a very considerable number of Fungi found by himself in this neighbourhood—indeed as many as could have been expected, considering the very limited helps to identification then at his disposal. Among others, though it is not included in that list, he found a very remarkable little *Omphalia*, which, so far as I know, has never been found since, but which Berkeley described and drew at the time, and which still goes by the name which Dr. Johnston gave it, *Agaricus Belliæ*, after Miss Bell of Springhill, Coldstream. Confining ourselves, however, to our own Transactions, I find that for the first thirty-two years of the Club's existence, though during that time long lists of Mosses and of Lichens had appeared in their pages, and even one or two notices of Algæ, there are but three Fungi mentioned—one in 1846, a very handsome *Pholiota*, found by one of our Honorary Members, Miss Hunter of Anton's Hill, *Agaricus caperatus*; another, *Botrytis umbellata*, Decand.—a mould, not before recorded for Britain, which Dr. Johnston found in his own greenhouse in 1847; and a third, a new *Peziza* described by Berkeley in our second volume—*Peziza rudis*—and found in the Pease Dean. But in the year 1863 evidence was given that Fungi were not being altogether neglected by our members. Mr Archibald Jerdon contributed then a long list of Fungi found by him in the neighbourhood of Jedburgh, a considerable number of which were new to botanical science. That list he supplemented by two or three shorter lists in subsequent years. Since his lamented death a few other similar lists have appeared of Fungi, which had escaped his notice. That is, so far as I have been able

to discover, a complete account of what we have done as a Club in this interesting field of study. Nothing systematic has been attempted; the district has hardly been explored at all, although Fungi are very abundant, and are at this season of the year obtruding themselves on our notice. Many of us are losing something of our interest in the old plants, most of which we know so well, and among which it is so rare to find anything new. But all around us, in field and wood, on stump and leaf, are hundreds of plants which we hardly know at all, and which are replete with interest to any one who will observe them. Our younger botanists will find here a branch of study in which there are still laurels to be won.

If we ask ourselves the cause of this neglect of Fungology among us, the answer is perhaps not far to seek. It is for one thing commonly supposed to be a very difficult branch of study, and no doubt like all new studies of the kind, it is difficult to the beginner. The field is a vast one. In the single genus *Agaricus*, there are about 800 species occurring in Britain, which have already been classified and described. Then in the other genera of the order *Agaricini*, there are about 400 additional species, so that if you pick up a gilled Fungus you have 1200 species to choose from in identifying it. And the greater number of them have a very strong family likeness, so that identification is a very slow and difficult process. I say nothing of the other orders of the Hymenomycetes, or of the innumerable microscopic Fungi. The vastness of the field then, even if we confine ourselves to the larger Fungi, as I mean to do throughout these remarks, is a great discouragement at first. Further, the fact that the soft Fungi cannot be preserved in any practicable way, as you can preserve grasses, or mosses, or lichens in a herbarium, is another difficulty in the way of pursuing this study. And thirdly, the fact, arising out of the first two, that so few give any attention whatever to the large Fungi acts as a deterrent to others who under the force of more frequent example might be induced to take the matter up. But in answer to all this, it may be said, first, with

reference to the supposed difficulties of the study, that like all other difficulties they tend to disappear in proportion as they are resolutely grappled with. A very little experience enables one to determine within reasonable limits the place that a new gilled Fungus ought to hold, and then by a simple process of elimination among a comparatively small number of neighbouring species, he succeeds at last in identifying it. And it is not to be supposed that the characters of the different species are not distinct. They are both distinct and constant, so that as soon as you become familiar with a particular Fungus you never confound it with any other, however great the general family likeness may be. The descriptions may be somewhat similar, but the Fungi themselves are not so. An untrained eye notices only two or three different kinds in an afternoon's walk, where one accustomed to observe them, will notice a hundred, and will recognise them at once by their own distinct marks without taking the trouble even to stoop down to examine them more closely. One is of course the better of a little help at first, but after that he is able to go on fairly well by himself, and with a constant increase of enthusiasm and interest.

Then as to the difficulty arising from our being unable to make a herbarium of the gilled Fungi; it must be confessed that that is a drawback. But a large number of people pursue the study of phanerogamous botany with both pleasure and profit without constructing a herbarium, and with the aid of a fairly good memory they find no difficulty in doing so. The only substitute for a herbarium we can have in the case of the larger Fungi is the use of coloured drawings, of which a very fine and complete set is at present being issued by Dr. M. C. Cooke of London. Happy the man who can do his own drawings for himself, for he both saves his pocket, and he is preparing a collection that is more interesting and useful to him than anything he could buy. He could not be better off though he could dry an agaric like a grass. But most of us can neither draw nor paint, and unfortunately illustrations of Fungi are scarce and expensive, so that without access to a good Library one

is at a considerable disadvantage. Even in the best libraries of Scotland, some of the books one would like to consult are not to be had. A large Club like this might do worse than set up a small but choice reference library of its own.

Admitting, however, that the difficulties of studying Fungi are quite of an ordinary kind, it might be asked, What is the good of studying them? There is of course first of all, and mainly, the scientific interest of the study, which is precisely the same as attaches to any other branch of scientific study. It is the study of nature; it is the exploration of a corner of the Creator's world. It possesses the same kind of interest to a Club like ours, as the study of mosses or insects or birds. Any one who has been touched with the fascination of science in any of its departments, would not think of putting such a question, and here, therefore, it is not necessary to give an answer to it.

If you depart from the scientific and descend to the utilitarian interest of the study of Fungi, one can make out a strong case. More than any other branch of cryptogamic botany, is the study of Fungi of interest to mankind. For one thing there is a gastronomic interest attached to them. They yield what ought to be regarded as a valuable supply of food, though as a matter of fact it is almost neglected. With the exception of the ordinary mushroom, and perhaps the Horse mushroom, there is no Fungus generally gathered and eaten in this country, though elsewhere all over Europe many species are used for food. I have never been able to ascertain how this comes to be, or why *Agaricus campestris* should be set in such a place of honour, and all the rest be nowhere. It is not because it is manifestly the best Fungus for the table; it may be as good as any, but it certainly is not better than some. And yet it is the only one that is lifted out of the despised ranks of the toadstools. It is the only one that people recognise and are not suspicious of. But it is irrational to carry favouritism so far. It is much as if we were to confine our attention entirely to cabbages and neglect cauliflowers. Of course the main reason is that the one Fungus is known and the others are not. But the

difficulty is to discover why it is the only known edible Fungus in this country, and whence the prejudice arose against the others. It is not the Fungus most easily recognised. It would be much easier to make a mistake in gathering the common mushroom than in gathering *Lactarius deliciosus*, e.g., which could not, if once known, be possibly mistaken for anything else. The dark orange juice which it copiously exudes is an infallible mark of it. People are afraid of being poisoned, and they are quite right. But there is no need for their being poisoned. The mushroom does not poison them, if they gather it in good condition, and do not eat too much of it. Many other kinds they would find as wholesome and as toothsome as the mushroom, such as *Agaricus gambosus*, the St. George's mushroom of May; *Agaricus procerus*, the ringed umbrella mushroom; *Ag. prunulus*; *Boletus edulis*; *Cantharellus cibarius*, the chantarelle of France, with its delicious scent of apricots when drying; *Hydnum repandum*, very common in fir woods, and easily recognised; *Marasmius oreades*, the champignon, or Fairy-ring mushroom; *Morchella esculenta*, the too rare morel; *Coprinus comatus*; *Helvella crispa*, and many others. These are continually kicked aside as cumbering the ground, as ugly and noxious things, but it is to be hoped that some day their worth will be more generally known. In some parts of Europe the peasantry find their chief diet in Fungi during part of the year, and it is not in accordance with our national thrift to allow so much valuable food to rot upon the earth.

The question is very often asked, "How am I to know a wholesome from a poisonous mushroom?" and the only answer that can be given is, that no general rule will apply. An ardent experimenter in this direction told me the other day that he ate every kind that did not burn his mouth when raw. I am not sure that I should like to adopt that rule myself. One ought to know the properties of a Fungus before eating it. There are at least a dozen common Fungi that are recognised as being wholesome and good, and any one who wishes to eat them must first learn to know them,

otherwise he may make the mistake of eating *Agaricus muscarius* for *rubescens* with consequences which may be inconvenient. Fortunately few Fungi seem to be actively poisonous, and a man may go on experimenting with impunity for a considerable time. The best course is to confine one's self to the use of those about whose good properties all are agreed.

Apart from this lower motive drawing us to the study of Fungi, much advantage of a different kind may be derived from a knowledge of their properties. Many of them are the causes of disease in the animal and vegetable world. We hear a great deal in these days of *Bacteria*, and though their connection with disease is perhaps not certainly established, there can be little doubt that their effect upon the human frame is of a deleterious kind. Splenic fever has been almost certainly traced to their action, and there is good reason to suspect that other diseases—such as consumption, cholera, and typhoid fever have a similar origin. They are a deadly enemy to the surgeon's work, and need to be specially provided against in the treatment of wounds. It is possible that the more careful study of these minute organisms may yet yield incalculable benefits to mankind.

It is not the human frame alone that suffers from the attacks of Fungi—other animals suffer in an analogous way. The sheep, the salmon, and the house fly are but specimens of their victims. They do immeasurable harm in the vegetable world. The potato disease, finger and toe in turnips, rust in wheat are caused by Fungi. Almost every plant has its own fungoid parasite which weakens its life and hastens its death. From the largest Polypori to the smallest moulds these mischievous pests are attacking not only one another—that might be forgiven them—but the whole vegetable and animal world. And there is no other way of checking their ravages than by attaining to a better knowledge of their history. As they are the most destructive agencies in nature, that branch of botany which is devoted to their study cannot be set aside as of trifling importance.

It is probable too that a better acquaintance with Fungi

may be the means of extracting from them many useful remedies for some of the evils which perhaps they themselves occasion. One would have a peculiar pleasure in seeing them "hoist with their own petard." But at present medicine acknowledges only one useful agent derived from the family of Fungi—the well-known Ergot. Not that even its properties are entirely beneficial. In some places it attacks the rye so inveterately that the inhabitants in consequence of daily eating the ergotized bread are liable to a species of gangrene. I saw lately in Norway a small patch of rye in which there was hardly a sound ear to be found; almost all were so covered with large horns of ergot as apparently to be useless for food. With this example before us there is no reason to suppose that other equally powerful and valuable remedies may not yet be deduced from the same form of vegetable life.

Let it be conceded then that there is both a scientific and a utilitarian interest in Fungi, how are we to set about the study of them? I think the natural order is to proceed from the study of the larger to that of the smaller, and not to begin with the microscopic species. Fries, the most illustrious of all students of mycology, recommends the study of the larger and more perfect forms first, and he even goes the length of saying, in the preface to the second volume of his *Monographia*, that the forms of leaf Fungi are so numerous as to make it doubtful whether they are even worthy of special names. Astronomers, he reminds us, do not give a name to every minute star which the telescope alone can detect. Beginning accordingly with the *Hymenomycetes*, a division embracing those Fungi which have an external *hymenium*, and whose spores are not enclosed in *asci*, and comprising the great orders of *Agaricini* and *Polyporei* with the smaller ones of *Hydnei*, *Thelephorei*, *Clavariæi*, and *Tremellini*, I notice first the books that will be most helpful. Less than 30 years ago the student of mycology was in a very different position from what we find ourselves in to-day. He had to struggle on without the assistance of any book that gave an adequate account of British Fungi.

In Vol. V. of the British Flora, published in 1836, Berkeley had given descriptions of a considerable number, but a still greater number were not mentioned at all. The older books, such as those of Withering and Bolton, were even more unsatisfactory. The first really useful book for the ordinary student that appeared in English was the Outlines of British Fungology by the Rev. M. J. Berkeley, a man who has done more for the study of Fungi in this country than any one else. It was published in 1860. But it contained considerably less than half the species of the genus *Agaricus* that are now recognised as British. The next book of the kind appeared in 1871—the Handbook of British Fungi, by Dr. M. C. Cooke, now out of print. It contains about 100 more of the *Agarici* than the Outlines did—452 in all, and with its help the student could make some progress, though he was continually meeting with species as to which it contained no information. Fortunately he was not altogether dependent on English works on Fungi. He could go himself to the quarry which all Fungologists in Europe were digging from. He could make direct reference to the works of Elias Fries. That eminent man, a Swede like Linnæus, had devoted himself almost from boyhood to the study of Fungi, and during his long life he published many contributions to its more complete and systematic study. The first of these appeared as far back as 1815, and the last of them nearly 60 years afterwards, in 1874, when he was 81 years of age. I need only mention two of them here, both of prime importance to the student. The first is his *Monographia Hymenomycetum Sueciæ*, containing a large number of species very fully and admirably described in excellent Latin. It was published in 1857, but as the edition consisted originally of only 100 copies, and these are scattered over the whole of Europe, it has become so exceedingly scarce as to be practically unattainable. I had the greatest difficulty in obtaining, bit by bit, a copy of it for myself. The other book of Fries, which is also a chief authority on the subject, can still be got at a moderate rate. It is the 2nd edition of his *Hymenomycetes Europæi*, published at Upsala in 1874, and also

written in Latin. It contains a larger number of species than the *Monographia*; the descriptions are not so full, but they are extremely concise and clear, and the arrangement, gradually brought to perfection by Fries himself, is all that in the present state of knowledge can be desired. With that book alone the student would be able, after a little practice, to identify any species of the *Hymenomycetes*, and until last year it was the only book that could really be recommended. But we have now one in our own language which is even more practically useful. I allude to *Hymenomycetes Britannici*, a work in two Volumes, by the Rev. J. Stevenson of Glamis. It is the one book for the British student of this branch of botany. It contains everything that is valuable in the two books of Fries I have already mentioned, with other matter of interest and importance, and it has the advantage of including only those species which are known as British. It contains furthermore a glossary of terms, and is beautified as well as illustrated by the woodcuts of Worthington Smith. It makes the study of the higher Fungi a delightful and comparatively easy pursuit.

I ought to add a word with regard to the plates of Fungi which have been published, and which are all the more valuable that they have to fill the place of a herbarium. They are all expensive works, but may be consulted from time to time in the larger libraries. First in order comes Sowerby's "Coloured Figures of British Fungi" published in 1797; then the generally excellent figures found in Greville's "Scottish Cryptogamic Flora," and lastly, of our own country's productions, the admirable plates of the *Hymenomycetes* now appearing from the hand of Dr. Cooke, author of the *Handbook*. These already number 830, and are the only complete work of the kind that has perhaps ever been attempted in any country. They are very faithful to nature, and are most useful, not so much in identifying, as in verifying identification. The only other sets of illustrations that I shall mention are Fries' *Icones*, and Bulliard's figures of French Fungi. Fortunately coloured figures are not indispensable, and with the two principal books I have mentioned,

or even with Stevenson's alone, the student can make satisfactory progress.

It is not of course necessary to go on to show how with such help Fungi are to be determined. That will appear at once from the books themselves. The method of procedure is precisely the same as for all botanical identification. Nor can I go into any of the interesting questions that the subject of Fungology suggests. I have not endeavoured to do anything else than simply persuade to the study of Fungi, and indicate the way to set about it. This year they have been more plentiful than for many years before; and every meadow and wood, every stump and tree is calling to us to come and search them. The Algæ, in their most beautiful forms, are only found in salt water; the rarer lichens and mosses and ferns are confined to a few favourite habitats; but rare Fungi may be discovered almost wherever you search for them, and no season of the year is without them, though Autumn is the main season for the larger kinds. It is when all the wild flowering plants are over, that they come forth in their hosts. A few of them, and notably *Agaricus velutipes*, are able to withstand even severe frosts. The study of them lends a new interest to the waning year. An extensive fir wood in October is to the enthusiast a happy hunting ground, and he asks nothing better than to be turned adrift in it for a whole day. If you regard the study of Fungi simply as an innocent hobby, it is by no means to be despised. A man who has no hobby is miserable. He does not know what to do with the odd corners of his time, and he may supply an illustration to the well-known lines of Dr. Watts about "idle hands." He deprives himself of the best of all possible kinds of relaxation from the severer and more serious work of his life by having no subject of special interest to which he at once and instinctively turns. But the study of Fungi is much more than an innocent and harmless hobby. It is, like every similar study, a branch of education in the best and widest sense of the word—that kind of education which not only trains the faculties of observation and memory, and cultivates the intellectual power

of thought, but also stirs the higher faculties of the soul to wonder and awe and adoration. As the infinitely great acts on the astronomer, so the infinitely little acts on the mycologist. The one with his telescope penetrates the immensity of space until he reaches some misty nebula which refuses to be resolved, but which may be only the nearer limit of a still more vast Beyond. The other with his microscope pursues nature in the other direction, and strives to make her yield up her secrets in the innermost recesses in which she hides herself. But the latter has no better success than the former. Perfect his instruments as he may, it is only to discover fresh wonders and beauties in the objects of his search without ever coming to the end. A thread of mould on paste, or a speck of rust on grass, will continue to show itself in ever new and perfect forms as we add one magnifying power to another, and we stop at last, not because we have discovered all, but because our vision can pierce no farther. It is the highest education which leads us through an intimate knowledge of His works to bow ourselves humbly down at the feet of Him who is the infinitely Great and Wise.

There is room, Gentlemen, for many more workers among us in every one of the fields which we try to occupy. And there may be many of our members who are looking round for some interesting pursuit to which they may devote themselves. There are no doubt several of our younger botanists who would like to penetrate beyond the region of the flowering plants. I would commend to them this tract of country to which I have been seeking to point out the road. In the distance it looks inhospitable and barren, but when you pass within it, it is full of interest and beauty, and it will draw you on by an attraction of its own.

Report of the Meetings of the Berwickshire Naturalists' Club, for the year 1887. By JAMES HARDY.

EDROM, BLANERNE, BROOMHOUSE, DUNS CASTLE.

THE Club held its first meeting for the year 1887 at Edrom on the 25th May, when 28 members were present. The day was misty and unenlivened by a single glimpse of sunshine, and the prospect was nearly shut out; but excepting the experience of a few slight showers, the walk was without much discomfort.

The church and nearly obsolete village lie on a sort of flat. It has rather a dreary aspect till the trees are in foliage. Edrom is a very extensive parish, and one thing a stranger is surprised at, is the amount of stabling required for the accommodation of the horses of those who attend the church from a distance. When the foundations of the stables were dug—for the erection is recent—the soil was full of bones, having doubtless formed part of the older burying ground.

While the company was assembling, Edrom house, which lies on the North, between the church and the river Whitadder, was looked at—a small mansion of the 18th century type. A Wistaria was in bloom on the front wall; and a Honeysuckle on one of the cottages. There are three or four fine tall well-grown silver firs here. The ground has been much altered and cut up. There has been on the west an avenue of lime trees, of which only one side has been spared. The manse and cottage gardens were bright with Violas, Daisies, and Primulas. The Black-cap, Mavis, and Blackbird were in full song.

Under the guidance of the Rev. Macduff Simpson, the renovated church at Edrom was viewed, and every one was gratified with the taste in which it was fitted up in the interior. It was a pretty general opinion that the Norman arch in front of the Edrom aisle, which stands apart from the church, had once formed the western doorway of the nave of the original church; and that the pillars with ornamental capitals now disposed alongside of it had been derived from the interior of that demolished church; and that they had been reconstructed in the form they now present after the rebuilding of the church in 1732. These are the oldest and most valuable remains of antiquity here.

I will not dwell upon the church and churchyard at present. On two several occasions I examined both the external and

internal condition of it, and copied the more interesting memorial inscriptions. Several old tombstones have upon them representations of implements of trade (goose and shears, spades); hour-glasses, etc. What remains of ecclesiastical antiquity have survived two successive renewals will be described in a paper preparing by one of our members on the subject of the Berwickshire Churches.

The original church was of ancient date, and was subsidiary to Coldingham, as a cell of Durham. The earliest notice of Edrom as a mansion or territory is in the times of King Edgar and William Rufus of England, about 1095. The earliest charter preserved was conferred by Gospatric or Cospatrick, second Earl of Dunbar, who died in 1139. His grant and its renewal by his successors was confirmed by King David I. and the following Scottish kings. It was then a vill furnished with church and chapels, so that it had been in existence prior to the grant. At an early period the Abbey of Croyland, in Lincolnshire, had a claim over it (the origin of which is uncertain) that had to be compounded for in the time of William the Lion, 1167, by an annual pension in money from Durham to Croyland. Croyland Abbey, built in 716 by Ethelbald, King of Mercia, for Black Monks, was restored in 1112, after being burned by the Danes. The church was undergoing repairs in 1327, 1333, and 1367. In 1332 the chancel was new thatched with straw. The straw and the foreign timber for the work were conveyed from Berwick; the timber unloaded from an "Estland" ship. Bishop Blackadder, who is reputed to have first constructed the Blackadder family vault, was Bishop of Glasgow from 1484-1508; and it was repaired by Sir John Home of Blackadder in 1696. There is a considerable amount of documentary evidence about Edrom. Its chapels were East Nisbet, Kimmerghame, and Earlston. When Earlston acquired parochial privileges, Edrom was still its "mother church." Latterly, Edrom was a vicarage under Coldingham till the Reformation.

Filing down by a dean, where there was a dam for the old mill, the wood bottom was full of herbage, especially *Anthriscus sylvestris*, *Saxifraga granulata*, *Doronicum pardalianches*, and White Coltsfoot (both garden outcasts), the company reached the banks of the Whitadder and its green haughs, which present pools of water and open ditches for exploratory researches. There was much *Symphytum tuberosum*; blooming plots of Marsh

Marigold; *Anacharis alsinastrum* in profusion; *Cardamine amara* and *pratensis*; vast beds of *Petasites vulgaris*, whose blossoms are attended on bright days by the hive-bees, who derive from it large pellets of a whitish pollen; willows, etc.

The river flows in a haugh of considerable width, and the banks rise considerably, the cultivated land and buildings being situated on a sloping elevated platform. At intervals the uniformity is broken by steep abrupt sections of grey tinted Tuedian shales with lengthened tawny coloured bands of indurated shale, or pale sandstones, disposed at a moderately high oblique angle. The river was crossed on a plank-bridge at Todheugh. Blannerne house fronted us, a little to the left, on a bank among sheltering trees; a modern dwelling of plain structure, but convenient; the original entrance had faced the river; it is now at the north side.

While the main body of members visited the well-stocked greenhouses and flower-borders, the President, the Secretary, and Dr. Stuart, as representatives of the Club, waited on Mrs. Sandys-Lumsdaine, by whom access had been given to view the grounds at Blannerne House, who very kindly showed the family pictures, and other relics of interest, including pedigrees of the now combined families of Lumsdaine and Sandys. There is an original portrait of Archbishop Sharp here, attributed by some to Sir Peter Lely, by others to Sir Godfrey Kneller. There were several old Bibles on the table; one a "Breeches," one said to have belonged to Archbishop Sharp; a Hebrew Bible, and some others; a silver coin of Queen Elizabeth; a coin of Henry IV. of France, found when making the road from the lodge to the house; a miniature of James Stuart, father to Prince Charlie; two daggers.

The old castle was next inspected: where some fine trees of great bulk were conspicuous; and two red-skinned Scots pines, not quite so large. A fine stretch of green park bordered with trees lies behind the house. The castle stood on a steep bank at the end of a high platform, which continues a considerable way up the river, with occasional breaks, and wooded, chiefly with beeches, on the steepest part. There is an appearance of two buildings, with an interval between. The first has been the keep, but is very ruinous: the old windows have been arched with red coloured sandstones on edge; and later square headed windows have been let into these. A fragment of the cattle-

vault remains, like one of the frail broken arches of the bridge in the vision of Mirza, but otherwise the interior is a black ruin. It has met the doom allotted to it by a traditional prophecy:—

“ Buncle, Billy and Blanerne,
Three castles strong as airn;
Built when Davy was a bairn:
They’ll a’ gang doon
Wi’ Scotland’s croon,
And ilka ane shall be a cairn.”

“ Davy ” is David I.; but none of these peels are so old as people imagine.

There is a space between the keep and what is called the “ Guard House,” which is newer, and in better preservation. It is fitted up for a dairy. There is a shot hole for a small field piece cut in a white sandstone, and a circular recess for the gunner who attended to it. The most prominent window has been arched originally at the top with red-sandstone slabs on end within which a squarish window faced with white sandstone has been inserted, which has beneath it a chequered carved stone resembling another of the kind that may be seen at Innerwick Castle. This is figured in Carr’s “ History of Coldingham,” p. 82. Of this portion of the castle I have been favoured with a pretty pen and ink sketch, which may be of subsequent use to the Club.

Of date June 15, 1329, Gilbert de Lumsdaine of Lumsdaine received from John Stuart, Earl of Angus, a charter investing him in the lands of Blanerne, within the parish and barony of Bonkill. This was in the reign of Robert Bruce. In the reign of William the Lion part of the lands at least were held by Everard de Pencaithland. In the reign of Robert Bruce Thomas de Pentkateland was forfeited in Pencaithland for adherence to the English and making war on that Prince, and his lands and those of “ Nesbet ” were conferred on Robert de Lawedir for his services. He may have lost the lands of Blanerne for the same reason and at the same time, but this is not on record. The Lumsdaines have maintained themselves at Blanerne ever since and have branched out to several districts in the north of Scotland and Fifeshire. One of the most distinguished, Sir James Lumsdaine, contributed valuable aid to Gustavus Adolphus of Sweden, and was 3d Colonel of the famous Green Brigade, or Hepburn’s Scots Brigade, in the “ Thirty Years War.”

The finest things in the flower borders at the time of the Club's visit were *Trollius Asiaticus* and *T. Altiacus*. The green-house was in a glow with a rich array of Scarlet Geraniums. There was a good Smilax with brown berries; and not yet in blossom a giant Amaryllis from Natal, which carries a delicate pinky white flower. It sends up two flower-stalks each year in spring, which produce some 13 or 14 blooms.

The gardener, Mr William Foulds, at Blanerne House, has measured for me the best of the trees. The dimensions are as follows:—

Ash, 4 feet from ground, 13 ft. 5 in.; 11 ft. 11 in.; 11 ft. 10 in.; 11 ft. 7 in.; 11 ft. 6 in.; 10 ft. 9 in.

Beech, 14 ft. 5 in.; 12 ft. 6 in.; 12 ft. 0 in.; 11 ft. 9 in.; 10 ft. 9 in.; 10 ft. 9 in.

Elm, 12 ft. 5 in.; 12 ft. 4 in.; 11 ft. 9 in.; 11 ft. 8 in.; 12 ft. 0 in.; 10 ft. 10 in.

Plane, 13 ft. 7 in.; 8 ft. 8 in.; 9 ft. 0 in.; 8 ft. 9 in.; 8 ft. 4 in.; 8 ft. 3 in.

Oak, 14 ft. 9 in., 3 feet from ground, all the rest are 4 feet from ground, 11 ft. 8 in.; 8 ft. 11 in.; 8 ft. 8 in.; 8 ft. 8 in.; 9 ft. 0 in.; 9 ft. 9 in.

Lime, 10 ft. 7 in.; 9 ft. 4 in.; 8 ft. 0 in.; 7 ft. 0 in.; 6 ft. 6 in.; 6 ft. 3 in.

Holly, 4 ft. 11 in.

Scotch Firs, 7 ft. 9 in.; several on estate fully as good as this one.

There is a rookery about the castle, but very much thinned in numbers, owing to the damage done by the Rooks to the potato plots and fields in the neighbourhood. *Arum maculatum* grows below the Guard house; and there is much *Rumex viridis* at the base of the sloping banks. There were no primroses visible on the walk.

Guided by Dr Stuart the party went ahead along the north banks of the Whitadder, sometimes across the haughs, at others on the summit of the steep banks, leaving the President and Secretary to come on at their leisure, and make observations. The haughs, although occasionally roughened with scrubby whin bushes, were mostly clothed with a rich sweet grass, in which several small fungi grew. *Polyporus radiatus* was very fine on the alder. This fungus did not yield any Coleoptera. The birds

on the river were Sand Martins and Swallows; the Sedge Warbler was heard; but no playful Sand-piper circled round.

There were fine sections of the Tuedian strata exposed on the southern bank, lying nearly horizontal. The Tuedian shales near Blanerne and Broomhouse have yielded to the collectors of the Ordnance Survey, several new and interesting species of Schizopodous Crustacea shortly to be described by Mr Peach. They are like the Redesdale species, (see Mr Hugh Miller's Otterburn Memoir, p. 84), mostly of the genera *Anthropalemon* and *Palæocrangon*.

Broomhouse was reached nearly opposite Marden by a wire suspension bridge across the river. The house, which is new, includes within it the walls of an old peel-tower—is of ample dimensions and built in a castellated style, and stands, well sheltered by old trees, in a delightful situation. The Club had been honoured with an invitation to luncheon by Mr. Clapham, the occupant at the time of the mansion, and his hospitality was very much appreciated. Mr. Clapham afterwards joined the company at dinner. The lineage of the Homes or Humes of Broomhouse will be found in Burke's "Landed Gentry." Like several of the Merse landholders, they were attached to the Jacobite cause; but subsequent to the disaster of 1745, the estates were recovered. This Broomhouse is not to be confounded with the Roxburghshire Broomhouse, near Littledean, burned in 1545 by Sir Ralph Eure, "with its lady, a noble and aged woman, her children, and her whole family;" a deed of wanton cruelty that whetted the revenging swords of the Scots at the battle of Ancrum Moor. See Ridpath's Border Hist., p. 553, note; Lesley, p. 455.

Again on foot under a new conductor (Mr Ferguson) the route led past the field where De la Beauté was slain by David Home of Wedderburn, September 9th, 1517; and Mr Muirhead, when opposite, gave a summary of the position of the site of his grave, and a short outline of the event. The proprietor, Captain Logan-Home, it is understood, intends to erect a memorial stone as near its position as can now be ascertained, for the original stone has been removed and the grave mound levelled. There is at present a crop of oats on "Bawtie's Bog." Till recently it was a peat moss, and a reed and rush producing swamp at the base of a *Kaim*, where water used to stagnate in winter, but it has now been thoroughly drained; and no one has any reason to

complain of this amelioration of its condition, provided the old stone had been left to tell its tale of bloody revenge.

The ditches by the way-side show a peaty soil; and in them grows *Sium angustifolium*.

The road led past Swallow Dean, Ladywell, and Ninewar to the main turnpike over the Stonymoor. At Ladywell, Dr Denholm had a hollowed out sand-stone to exhibit. It was scarcely a creeling trough, being more like a pig's stone. It was conical; with the lower portion narrower, and not uniform, looking as if cut out and deepened after the upper section had been hewn out. Mr James Thomson said that it was like a stone once used in the north of Scotland for depositing webs in during the bleaching process; but it was too small for this.

The road by Oxendean was reported to be grassy and wet in a damp day like the present, hence the entrance to the Duns Castle grounds was made at the gate at the head of Castle Street. After passing the outer gate, the supposed site of the house of Duns Scotus was pointed out, and not far from it that of Dr M'Crie's father, both now included within the park. On entering the inner gateway, the trees of the fine avenue of limes, that had been re-erected after being prostrated by the great gale, were found to be lively and full of expanding buds. Three of the company heard the song of the Chiff-chaff from among the top branches of one of the lime trees. There is no doubt now of its permanent establishment as a summer visitor to the county, from its having been visible in so many localities and to so many competent observers. Through the thoughtful consideration of Mr Hay of Duns Castle, who had sent directions from Italy, the Club was shown the principal rooms in the Castle and the rare collection of family and other portraits by which they are enriched. The old family both on the Hay and Seton sides of the house were attached to the Stuarts. Mr Hay possesses as a present to one of his ancestry from the exiled family a precious group of Stuart portraits by an Italian artist. These are James VIII., "the King across the water," and his Queen, Mary Clementina Sobieski, and their sons Prince Charles Edward and Prince Henry, afterwards Cardinal York. Besides these there are James VI., John Duns Scotus, etc., etc.; but the time was too limited to make an adequate survey of either the paintings or the finely-carved mantelpieces, chairs, etc., or the richly inlaid cabinets and other precious works of art treasured in the drawing

room. A rich new ceiling has recently enhanced the beauty of the dining room, which is further enriched by an admirably carved mantelpiece representing Queen Mary's escape from Lochleven, etc. The deep window recesses (9 ft. 6 in.) of this room evince the great thickness and strength of the walls of the old portion of the edifice which had been originally a peel tower. The old copy of the "Covenant" preserved here, has been framed. There are several local names among the signatures, which render it possible that they might be appended on Duns Law or in the house. The company descended by the turnpike stair. While viewing the lake, Mr Ferguson stated that during the present dry spring from a deficiency of frogs and water-rats, the Herons carried off the young of the Coots for food to the young Herons. The gamekeeper on several occasions had witnessed their thievish proceedings.

Dinner at the White Swan Hotel, Duns, was punctually on the table at 3.30 p.m. The President, the Rev. David Paul, Roxburgh, was in the chair, and Dr Stuart, Chirnside, officiated as croupier. Twenty-six dined. Part of the company having hurriedly to withdraw to catch the train going west, the party was considerably broken up.

After dinner, large collections of rare and beautiful alpine and early garden flowers were shown by Dr Stuart, Mr Muirhead, Mr Ferguson, and Mr Charles Watson, which proved a great attraction. There was very little leisure for paper-reading, but Mr Muirhead gave the principal facts about *De la Beauté*, which will appear to greater advantage when the paper is printed. Mr Hardy's notes on Edrom and the fine collection of urns recently found at Hoprig, near Cockburnspath, were held as read. Mr Smith's excellent drawings of these urns and the accompanying flints and iron ore were handed round. This is one of the most valuable discoveries of urns ever made in Berwickshire. Besides those reported in the newspapers at the time, other two urns, much finer than the previous two, were obtained under a slab that had remained unlifted at the first exploration. Mr Smith had also set up and drawn two other urns from Lilburn Hill, Northumberland, which were also exhibited. The diversity of design and shape, and the display of good taste by a savage people, were remarkable characteristics in these funereal vases.

Mr Andrew Currie, Darnick, sent to be shown to the Club a

plan of the Roman barracks discovered during the winter months at Cappuck, on the Oxnam Water, with measurements. The drawing, not yet completed, appears to be a faithful representation of the position of the Roman station, so far as it has been excavated. The field in which it is situated is under crop. Mr Currie also sent a drawing of a curious old dial, surmounted by an inscription in Runic (?) characters, from Newstead. Likewise he has made a pen and ink sketch of a fine upper window of an old down-coming house in Newstead. There is a date on it of 1615. This house is "said to have been the Mason Lodge of the Guild of Masons about the time of the building of Melrose Abbey." The stone, much wasted, is red sandstone from the Eildon Hills. Mr John Anderson, Preston, sent larch-fir cones nibbled by squirrels, which had caused them to assume peculiar shapes. Some had been converted into double-arched cones united at the top so as to form a complete ring. There were transitional forms also, where the cones, not completely bitten through, were still entire and flattened out above the base, forming broad compressed ovate "fir-tops."

Mr Pow, Dunbar, sent a Sanderling, nearly in its summer dress, from near Dunbar, where it had been arrested in its passage to Arctic lands; and a Yellow Wagtail (*Motacilla Rayi*) from Thornton Loch, East Lothian. The Yellow Wagtail is on the Berwickshire list, but it is very rare, although it is not uncommon in the west of Scotland. It is not so much attached to water-sides as some of the other species. Thornton Loch is only about three miles from the nearest point of Berwickshire.

A very interesting article, "a ball-extractor," also from Dunbar was a large double screw, which had been fitted to a ramrod to extract the wadding when damped from a blunderbuss or small field-piece. A small iron bullet, weighing $3\frac{3}{4}$ ounces, accompanied it. These had been obtained near the Doon Hill of Spot, and had been lying covered up in the soil ever since the battle of Dunbar, 4th September, 1650. Large quantities of ammunition were left on the field by the Scots when they fled in a panic. Cromwell bears testimony to this, which he recapitulates in a sentence:—"We killed (as most think) 3000; took near 10,000 prisoners, all their train, about 30 guns, great and small, besides bullet, match, and powder; very considerable officers; about 200 colours, above 10,000 arms; lost not 30 men."

The following gentlemen were nominated for membership:—

1, Right Hon. Edward Marjoribanks, M.P., Ninewells House, Chirnside; 2, William Cecil Hedley, Cheviott House, Corbridge-on-Tyne; 3, Rev. P. B. Gunn, M.A., Oxnam; 4, George Fortune, Duns; 5, Rev. Macduff Simpson, M.A., Edrom.

The following were present:—Rev. David Paul, Roxburgh (President); Mr James Hardy (Secretary); Revs. William Robertson, Spouston; Evan Rutter, Spittal; Beverley Wilson, Duddo; John Walker, Whalton; Macduff Simpson, Edrom; W. B. Herald, Duns; Captain F. M. Norman, R.N., Berwick; Drs. Stuart, Chirnside; and Denholm, Broomhill; Messrs Peter Loney, Marchmont; Edwin Clapham, Broomhouse; John Ferguson, Duns; William Crawford, Duns; William Gunn, Duns; Charles Watson, Duns; Joseph Wilson, Duns; George Muirhead, Paxton; James Greenfield, Reston; J. L. Newbigin, Alnwick; William T. Hindmarsh, Alnwick; James J. R. Storer, Alnwick; James Thomson, Shawdon; William Currie, Linthill; Abraham Burbery Herbert, Edinburgh; John Turnbull, Ettrick View, Selkirk; Michael Muir, Selkirk.

FELTON, BRECKBURN, LONG FRAMLINGTON, SWARLAND,
NEWMOOR HOUSE, OVERGRASS, NEWTON-ON-THE-MOOR.

THE Felton excursion on June 29th was composed of two parties—one assembling at Felton, the second bringing with it a carriage for the future journey, departing from Alnwick. I accompanied the Alnwick members. It was a most favourable day for seeing the country. Nearly all the way to Felton, wherever the hedges had been left unpruned, the wild roses in bloom were magnificent. Agriculturally many of the fields passed cannot be favourably spoken of, as several of them were bare of grass, or reverting to their pristine condition, or even worse; but the sheets of blooming *Lotus corniculatus* afforded splendid pictures of glowing yellow, and these not confined to one position, but diffused across most of the old pastures of the district. Swansfield, towering from its vantage ground, was enveloped in a mass of leafy umbrage, and Rugley at a distance showed fair amongst its detached circuit of groves. The site of the well on the Alnwick Common, where the candidates for municipal honours in times gone by submitted to an undignified struggle, was within view. Cawledge Burn, which was crossed, presented a most promising scene for botanical inquiry. Here, and at intervals

along the hedges, the spangles of white Guelder-rose were conspicuous among the blooms of the wild roses, which were mostly of a red hue. Shilbottle, with its square church tower, and the "Round Plantation" at the top of the hill-ridge, were passed, always prominent land-marks. An oak and beech wood, cramped in its tree-growths, on the right screened Snipe-house, behind which the green ground slopes up to Alnwick Moor. We then descended to Hampeth Burn, so admirably described in Mr Tate's History of Alnwick, which originates near the Thorny Knowe (699 feet) a little to the east of the Black Lough on Edlingham Moor. Here roses still more lengthened their luxuriant sprays, and again intermingled with the snowy Guelder-rose. These native garlands were worth going miles to see. On a slope behind Newton-on-the-Moor, the land is subdivided into numerous small fields, which were in a fair state of cultivation. Barley was then shooting into ear. We passed the Sun Inn, where in coaching days was wont to be had "the best ale under the sun." Shiveringly cold and cheerless were those coaching tours, requiring all the solace afforded by the little wayside inn. There now opened up an extensive prospect sea-wards, with Hauxley and Coquet Island to rest the eye upon. We next crossed the Newton Burn, including Hesley Burn, which drains much of the moist ground round the Black Lough, and the Lough itself; having descended in its course from 699 to 329 feet before it unites with the Hampeth. The Newton village, 423 feet above the sea, lies in a compact line on a ridge; the colliery was in full operation, and emitting its volume of black smoke.

At the entrance to Newton Hall, the abundance of Monkshood near the lodge, shows what a favourite this poisonous plant once was in the garden. The lurid blue that it supplied is now eclipsed by the substitution of the gayer and brighter tinted Delphiniums closely allied to the Aconites.

In the fir plantations, and by the road-sides, the white Ox-eye Daisies grew like a sward, as they do in Alnwick Park and at Shawdon. Their white stars twinkling through the trees were very enlivening. The scent—a strong coarse perfume is not so agreeable as their forms. I saw in Eslington garden a pretty variety of this from Tynningham in East Lothian, with the ligulets more drooping in the ray. The fertility of the land improves, although the wheat crop was thin; there were now good examples of clover hay. Swarland monument was passed; and

the backs of Acton Hall and Acton House appeared. Several old Hollies and Hawthorns stood marshalled near, indicative of an obsolete mansion. The site of Old Felton could not be far off. *Sanicula Europæa* grew in a plantation, and *Juncus glaucus* on the moist margins of the road. The dry hedge-banks were overrun with wild strawberry. Here was caught a view of the back of Felton, the wooded line showing the course of the Coquet, and in the distance the dark woods clustered round the hollow in which Brenckburn is enshrined.

Felton is an open village on a steep acclivity. Two picturesque thatched old houses were noteworthy relics of a bygone age, erected with rough unsymmetrical sandstone blocks, and having square small-paned windows; one with the front, the other with the end-wall to the street. Facing to the south is a fine terrace of tall new houses, with luxuriant wall-roses in full bloom, trained over their fronts. Felton is famous for its roses. The river scenery is finer above than immediately below Felton bridge. In the present low state of the river, it was divided below the bridge into two channels, with a gravelly island intervening. The party at Felton, including the President, were awaiting our arrival, and the horses were speedily yoked. Rising up the "Peth," we had a view of the fine woodland scenery attached to the mansion of Felton Park and probably co-eval with it, for it is not old. On the left was a fine field of red-clover, with flaunting red-poppies interspersed, but this weed is not prevalent here. The Corn Crowfoot also showed itself.

From Felton it was at first proposed that an expedition should be undertaken to Helm-on-the-Hill, but some preliminary diggings instituted by Mr Dand were not deemed sufficiently productive to take the Club in that direction. Mr Dand, in a letter dated 1st June 1887, says: "Near to Bockenfield, an ancient seat of the Herons, is an eminence named the Helm o' the Hill * commanding a very extensive view, and which was no doubt a very important post of the 'troublesome times.' Within a short distance is the site of a chapel dedicated to St Cuthbert, where his body was rested in the flight of the Monks from Durham to Holy Island. I went about a fortnight ago, and had portions of the foundations laid bare, but there is really little to be seen to mark the spot. In a hedge adjoining we

* There was once another Helm Hill on Scrainwood estate, possibly the hill on which the map indicates "Black Chesters."

found some dressed stones used in its erection, and pieces of mouldings for doors or windows with the zig-zag and dog-tooth ornaments." Subsequently a road on a lower platform was selected, which included Brenckburn, and led to Long Framlington, and skirted a district that still continues unexplored.

Turning from the main road to the left, we wound our way through a cultivated country between mostly tall, thorn hedges, intertwined with wild roses, and of no great agricultural pretensions, with some small farm steadings here and there, one of them being Bywell. The soil is a brownish yellow clay of decomposed sandstone and perhaps coal-shale. There were willow-herbs (*Epilobium hirsutum*) in the open moist ditches. Mr Dand said that the irregularly crooked road represented the boundary of townships. A ridge of high ground terminated the view near Bockenfield, and at the top of it was a remarkable field of wild mustard, visible from every direction, being the only one of the particularly pale yellow of this weed. This was at "Helm-on-the-Hill." This ridge was continuous to Rothbury Forest. Between us and it lay much well divided, but bare land, apparently in a back-going condition, and requiring a new wave of the spirit of improvement to renovate it once more. Soon may that period arrive, and those fields again smile in the bright green that culture confers!

Prospects improved as we issued at Hedley Wood Bank, on the Wooler and Morpeth turnpike, with Brinkheugh in front, about which we were told the story of the proprietor shooting his son. After passing a brick-work we came down on Weldon Bridge, so often sung by Robert Roxby, and his genial poetical companions and imitators of the angling fraternity. At the joiner's and blacksmith's shops we turned up to Brenckburn. The half swampy ground by the river side is overgrown with willow plots (*Salix purpurea*, etc.,) alders; and black-headed *Carex riparia* in the ditches. On the south-side the spacious foliage of *Petasites vulgaris* came into the picture. On the right hand were many rough weeds *Hypochaeris radicata*, *Cherophyllum temulentum*, *Knautia arvensis*, *Geranium pratense*, etc.: much *Juncus glaucus*; abundance of wild roses; not many brambles. The Hawthorn had been rich in blossom, which was now fading into a red tint. At length a footpath conducting to Brenckburn Priory was reached, and the conveyances were abandoned. Here under woods partly native, but principally planted, a rich flora compen-

sated research. The trees were chiefly Hazel, Oak, Elm and Ash, with a sprinkling of Bird Cherry. The plants were *Myosotis sylvatica*, *Veronica montana*, *Rumex viridis*, *Carex sylvatica*, *C. hirta* (in sand by river side), *Ajuga reptans*, *Lysimachia nemorum*, *Sanicle Europæa*, *Scrophularia nodosa*, with its parasitic beetle, Primroses, *Hypericum hirsutum*, *Circea lutetiana*, *Geum urbanum et rivale*, Wood-ruff, Dog-violet, *Oxalis acetosella*, *Stellaria holostea*, *Geranium sylvaticum*, *Epipactis latifolia*. The Tooth-wort, which requires a special search, was not visible. As we proceeded, several Wood Wrens were heard calling from the tall trees, and the omnipresent Willow Wren poured out its mellifluous lay. The cliffs of sandstone on the south bank arose to an imposing height, finely clothed with wood issuing from the fissures or growing from the ledges, and there were many wide-spreading trees by the river. But before reaching the best display of mingled rock and sylvan adornment, we came out on a green elevation and grass pasture, where we gathered *Habenaria viridis*, *Gymnadenia conopsea*, *Orchis maculata*, and *palmata*, *Linum catharticum*, *Lychnis flos-cuculi*, *Briza media*, *Euphrasia officinalis*, *Fragaria vesca*, *Mentha arvensis*; and farther on *Agrimonia Eupatorium*, a luxuriant form; and *Valeriana officinalis*. *Boletus luridus* was picked up. We now struck the paved road that conducts to the dry platform, where the conjectural "Roman villa" stood, but more probably some mediæval grange, or other building conducive to the convenience of the Priory. It led to the bridge that had once crossed the river here obliquely. The foundation of the middle pillar is obvious among the shelving sandstones of the bottom. Several hewn stones, picked, one would say in Roman fashion, although this is not an indubitable index, were strewn about. The river during floods, is encroaching on the banks, and laying bare the foundations of the land-stools. Several ornamental half-wild plants grew on some ruinous buildings and stables nearer the Priory: e.g. *Linaria cymbalaria*, Viper's Bugloss, *Verbascum Thapsus*; and as natives *Asplenium Trichomanes*, and *Hieracium vulgatum*. The house and Priory, in a charming situation, amidst a green shaven lawn, with the river wending round and a wooded height in front, revealed themselves suddenly, as if a veil had been uplifted. They are beyond all praise. The steep wooded banks declined, and shewed a sub-conical grassy hillock on the opposite side of the peninsula and the river, connecting itself behind with adjacent green

pastures. Various ornamental trees drew attention in the outer circuit of the Priory, especially a white flowered *Cratægus*, supposed to be *Andrewsii* or *Aurelii*, some well-grown Deodars, a Cedar of Lebanon, *Pinus nobilis*, and other Coniferæ.

Mr Cadogan supplied me with a list of these. Those marked with an asterisk flourish well.

<i>Pinus Cephalonica</i> ,*	<i>Thuja gigantea</i> ,*
— <i>nobilis</i> ,	— <i>Berensii</i> ,*
— <i>Benthamiana</i> ,	<i>Thujopsis borealis</i> ,*
— <i>Hamiltonii</i> ,*	<i>Abies Douglasii</i> ,*
— <i>monticola</i> ,*	<i>Wellingtonia</i> , etc. etc.,
— <i>Lambertiana</i> ,*	<i>Araucaria imbricata</i> .
— <i>Cembra</i> ,	
<i>Cedrus Deodara</i> ,	

“Most of the Douglas firs were grown from seed, given to me by the late Sir Charles Monck from trees then growing at Belsay about thirty years ago; but I find they blow down very easily, and therefore are only suited to sheltered situations. All my half-hardy sorts perished in the severe winters about 1880. The *Cratægus* was planted before I can recollect. The gardener of my early days used to call it the American Thorn, but whether he was right or wrong I cannot say. It bears always a sort of half haw, half apple and eatable.” Mr Cadogan also communicated that he had imported into the woods and river banks—“Bird’s nest fern, from Norway; *Cistopteris fragilis* from Scotland; Holly-fern, *Lonchitis*, from Ross-shire; *Onoclea sensibilis* from Sims’ Nursery in Kent—and all seem perfectly naturalised.”

It may seem to be unsympathetic to be botanising in front of the beautiful Priory, so well restored and preserved by Mr Cadogan. The Club has already had its share in making it better known; and a full description of it, previous to its restoration from the competent pen of Mr F. R. Wilson, appears in the “History of the Club,” vol. iv. pp. 139-145 (with plate); repeated in the churches of Lindisfarne, pp. 142-143, with a ground plan of the structure. See also “Proceedings of the Archæological Institute:” Newcastle Meeting, 1852, (vol. i. pp. 245-252), by the Rev. John Louis Petit, M.A., F.S.A., with illustrations. What information respecting its history was elicited in consequence of the Club’s present visit, will appear subsequently, Mr Cadogan having furnished an abstract of the original cartulary made by Canon Greenwell, which differs in its greater fullness from that in the 2nd vol. of the “Archæologia

Æliana." He sent also a copy of translation of the "Minister's Account" at the Dissolution, which has apparently never been printed.

I merely add a few adjuncts, about which Mr Cadogan had written some remarks. Everything from his pen is precious now. Before doing so, I must not omit to note that *Parietaria diffusa* was frequent on the walls, as well as tufts of *Asplenium Trichomanes*. Clematis and Ivy added their graceful tracery. *Berberis vulgaris*, *Cheiranthus Cheiri*, *Chelidonium major*, and *Doronicum Pardalianches*, were also noticed at Brenckburn. A very diligent colony of hive-bees has long had possession of a chink of one of the walls. On the N.W. side of the church is a leaping-on stone, for people who attended the services mounting their horses from. The top stone of it is a large square sandstone block, with a square aperture in its centre for adjusting a pillar—brought from glebe land, which had had crosses or square pillars to mark the boundaries. There used to be throughout Northumberland a kind of saddle or pad for the mistress to sit behind her husband, provided with an adjustment to fasten her feet in. Some fragments of old pillars are placed about the entrance on this side, with other miscellanea, among which was a recently cut white sandstone vase, decorated in compartments with oblique hatched lines like those of a British Urn; also a rude effigy of a female with a crown on her head, as if she were dragging herself out of a wide old-fashioned petticoat, of which only the upper part was visible. Both are of recent execution. In regard to them Mr Cadogan wrote: "The figure was brought by me from an old cottage on the Moor Edge, where a family named Grey lived for three or four generations, until these times snuffed them out. The old man brought, on the last occasion when he paid any rent at all, half a sovereign, when my father said he should sit rent free for the remainder of his life. His descendants in the third and fourth generation are still living in two cottages, and one of them works for me. The stone image was always said to have been prayed to by one Mary Gray, who flourished about 1820, and it used to be called 'Mary Grey's God.' The urn-shaped vessel was no doubt a 'creeing-pot.' There used to be also the upper stone of a quern found not far off on the Cockshot farm."

Mr Cadogan states further: "I have given Canon Greenwell a stone-axe which I picked up about twenty years ago, when out

shooting in a field on a farm called Tod-steads, between Weldon Bridge and Brenckburn. He has also a well-formed and perfect flint-scraper obtained from the site of a removed barrow on Healy farm. There are also a large quantity of small cairns on the Rimside Hills, and some large ones, some of which have never been opened—these are on Dr Fenwick's Framlington Estate. Rimside hill has round its base several heaps of loose stony earth, which I take to be relics of glacial times in the form of Moraines, on one of which a lot of flint-chips were obtained." He adds in a postscript: "I have found another rock with cups on it, near the mouth of Blackburn on the Pauperhaugh farm." This also intimates a previous example. On the 25th July 1834, as some workmen were forming a new road near the Priory, they discovered a small brass pot containing several rose nobles of Edward III., and some half and quarter nobles of the same reign, all in an excellent state of preservation.* Again in February 1848, "twelve gold nobles of Edward III., enclosed in a bronze urn, were found about this time at Brinkburn Priory, near Morpeth."† Mr Cadogan, in reference to one or other of these finds, apparently the latter, if they were distinct, says; "the bronze vessel containing the gold nobles is undoubtedly Edwardian, and was found *under* the hearth stone of a burned wooden building covered by an inverted stone trough such as is sometimes used for feeding pigs."

Inquiries having been made about the natural woods on the estate, and the rare wild plants, Mr C. wrote: "I believe there are three natural oak woods on the estate, one, a large one which you could not see," from the position where we were. "The Royal Fern (*Osmunda regalis*), grew naturally on a waterfall in the Hope Wood, but the tourists have destroyed it root and branch. I cannot find the *Orobanche* (*O. major*), though I saw it in 1846, I think; and the late Rev. John F. Bigge asked me if I had noticed it, as he had once seen it—he thinks it was in 1834. He took me to the place, and it was where I had seen it in I think 1846. It was not to be seen in 1865, the year Mr Bigge was staying with me—nor did I see it in 1868,—a dry year and hot like this [when it could not be found after a search]. I am told there is a rare moss or some dwarf grass (*Lycopodium*?) growing on the moor just behind a farm stead called the Hope, but I know nothing of these small plants—though I have re-

* Latimer's Local Records, p. 27.

† Ibid. p. 242.

marked it growing. I have also a creeping plant with a single terminal flower, now in seed, growing in only one hedge, which I do not know. *Epipactis* [*latifolia*] is common in the woods."

After leaving the Priory where a pleasant hour had been spent, several of the members thinking it was the proper ceremonial to undergo, and that it was the remains of a monkish cellar, groped their way through the vaulted stoke-hole of the old vinery of the disused garden adjoining the house. It had not the effect of the cave of Trophonius, for those who underwent the ordeal, issued merrier than when they entered. In ascending the bank adjoining, a white variety of *Ajuga reptans* was gathered, and there were sprinklings of Fox-glove and Wood-ruff. The green platform on the height presented traces of foundations of buildings, but so indefinite that no opinion could be formed of their design. The platform is fully described and mapped in McLauchlan's "Survey of Eastern Watling Street." No Roman remains have ever been found upon it. A silver spoon had once turned up. There is a tradition that it was formerly a market place. The view up the Coquet presents the outskirts of Rothbury Forest as visible from Cragside; the thickets of old oak trees on the south-side above Brenckburn; and the Blackburn on the north, a favourite resort of foxes; and beyond, the Cragside, Simonside, and the peaks of the Tosson and Harbottle hills.

Resuming the carriages, the very distinct pavement of Watling Street was crossed, and Brenckburn High House passed. We turned to the left between woods of goodly trees, and then by a slanting road (Rothbury lane), we ascended towards Long Framlington. The soil hereabouts was rather indifferent. At length we came into a broad road with spacious margins, bounded on the west side with a high raised boundary bank, topped by a thorn hedge, intertwined with wild roses suspended in long rich garlands, and numerous hazel bushes, reminding us of similar remains of native trees on the Roman wall near Chesters (Brunton and Tower Tays), and Gilsland (Poltross Burn and Willowford). *Stachys Betonica*, a plant frequent here in old pastures, began to manifest itself on the hedge banks. Then the hedges were set wider back, and a green border next the road appeared to be the Roman Watling Street. This used to be the great camping place for gypsies. None of the land owners can claim these entries. Here the two Long Framlington fairs or trystes were held—where numerous lambs and other

stock met a ready mart ; and horse and other races were contested.

“ Horn’d cattle, and horses, mules, asses and swine,
 And sheep of all kinds kept ’twixt *Tweed* and the *Tyne* ;
 A skilful collection of choice Cheviot rams,
 And also the best breed of bleak-border lambs ;
 Hard hogs from the *Highlands*, some long and some short,
 And some sightly samples of *Leicester* sort,
 Some *South Downs*, some *Dishleys*, some *Dorsets* and *Harts*,
 Some *Bedfords* and *Bakewells*, grace mayor Millar’s marts.

* * * *

A caravan crowded, came here from the east
 With *Bengal* bred bipeds, and *Bot’ney Bay* beasts ;
 Stage-tumblers and walkers upon the slack wire,
 And, dancing dogs deck’d out in harlequin ’tire ;
 Eke, eight *British* badgers brought back in a box ;
 The big and the beautiful *Berwickshire* ox,” etc. etc.

“ Long Framlington Fair,” in Bell’s *Rhymes of Northern Bards*, Newcastle, 1812, pp. 245-6.

The fairs or trysts were established on July 15th 1803. The village was entered from the west, and a pause was made for refreshment. The small nave of the chapel here is old, but part of the rest of the structure is very much composed of stones from Breckburn Priory. “The chancel arch, the porch, and the doorway,” says Mr Wilson, “Churches of Lindisfarne,” p. 147, “from the porch into the nave are of Transitional Norman workmanship, corresponding with that of the Priory church. The chancel arch is enriched with three slender detached columns on either side ; and the nave-doorway has two on either side in square recesses of the jambs, made to receive them ; their caps are carved.” There are three marble tablets on the walls of the nave, to members of the family of Fenwick, of Long Framlington.

There is a commanding view from Hall Hill of the well-wooded country beyond the Coquet framed at its outer edge by a bounding ridge. Close at hand by the Swarland burn, and backed by the Swarland Plantations, lie the several farm steadings, some of them brightened by their red tiled roofs, of New-moor-house, (Nimmer-house) Small-dean (Smaden), Long-Row, and Swarland Fence ; and onwards in advance in an open space, Old Swarland, beyond which the woods again close. In the depression at the south-western end of Hall Hill, is “Hedderick’s Well,” once famous for contributing a supply of soft water for infusing tea. It is protected by sandstone slabs. There used to be a swamp

surrounding it, where men now middle aged gathered rushes when they were boys, to plait "rasher caps" with; and its well-strand was prolific of cooling water-cresses. On the opposite side, in front of a couple of cottages, one now ruinous, lies a rude and shapeless ample stone flag, much worn by feet, that had been the hearth-stone of one of the old capacious fire-places, but now dragged to the day, for modern people to wonder at. There is evidence in the numerous houses that are being reconstructed, that after a long slumber the place is being resuscitated.

While one part of the company drove off in the direction of Newmoor house, another took the direction of Old Swarland, and after considerable detour met the other at Overgrass Mill. I was included in the latter party. We had on our left, in a green field what was said to be a camp, and lower down at a turn of the Newcastle road stood Low Framlington. The hedge sides all round both the Framlingtons are full of wild strawberries. Afar off from the Brinkheugh side we had seen the bare grassy fields in this direction; and further up towards Snook-bank* and the Glantlees, where culture mingles with the moors, the *Lotus corniculatus* shone brilliant among the scant pastures. The clayey soils hereabouts are also notable for producing "Framlington Clover," which is *Prunella vulgaris*, called in Berwickshire "Poverty Pink." The country on the right looked bare and moory looking, as it stretched on towards Rimside Moor. Rimside Hill and Shirlaw Pike are the most prominent hills of the range. The "Black Sow of Rimside," is a boulder or detached block of sandstone on the southern contour of that hill, much resembling it is said the animal it is supposed to represent. The saying is; "If ye were on Rimside Moor at twelve o'clock, with the Black Sow by the tail, ye wadna' be here the night." See "Rimside Moor," by the present writer in Richardson's Borderers' Table-Book, Leg. Div. III. pp. 34-5; and the "Denham Tracts" (now printing) for further illustrations. From the "Shirehope or Chillhope well," on the edge of Shirlaw Pike, Framlington derives its supply of pure water. These two hills are land-marks to the Hauxley fishermen when at sea; they call the massive

* Called "Schakelzerdes Noke," in a grant to Brenckburn by Roger Bertram of a certain part of his waste in Glanteley.—(Brenck. Chart. No. XXI). Perhaps this signifies the Nook (land shaped corner-wise) of the chained or shackled enclosures for the protection of cattle and sheep. There are ruins, which may be of any age, of old stone folds on the hill to the N.E. of the present farm-steading. *Nook* and *Snook* are identical.

Rimside hill "Braidy," and the peaked hill, "Sharpy." By the road we travelled, we dived down between rose-decorated fences to Swarland burn; having an uninterrupted view seawards, as far as Cresswell, and winding round to Hauxley and Coquet Island, with a richly clothed intervening space of cultivated lands. Passing Fence Houses or Swarland Fence, we crossed the burn, with alders and oaks and planted trees on its banks and margin, and reached Swarland village, when we went across to see the old mansion of the Hazelriggs, now converted into the farm house. The door and window sides have curiously twisted pillars, and architraves. It is built of large smoothed blocks of sandstone; and is covered with large sandstone slates, which were quarried on Rimside Moor. It is not so old as was expected. There is an effaced inscription above the door in which 17.... is still perceptible. A drawing of this should be obtained. Mr G. H. Thompson writes that there was a wood-cut of it published by Mr Davison of Alnwick. Possibly the old family occupied the peel tower till a later period. The inscription was possibly a scripture text, for the family were latterly Presbyterians of the strictest sort, and for a time were forfeited for their adhesion to the Commonwealth; and were restored by James II., when he adopted conciliatory expedients to secure the adhesion of the Puritans to his measures.

Some progress has been made in ascertaining the old proprietors of Swarland from the age of the Bertrams of Mitford, the earliest overlords, down to the present time. This will be kept in view. In the garden were gooseberry bushes, some apple trees, and blossoming roses. A fine crop of yellow stone crop had attached itself to the garden wall.

We now turned north, and entered the policies of Swarland Hall, (Mr Andrews), passed at a little distance the good-looking, although plain, new-house, and fine park, the recent cottages and their trim flower gardens, and the freshly built offices, and then turned west again, alongside a plantation of tall firs, that had been decimated by the gales of recent years:—and where the undergrowth was heather. Here we were immediately behind Newton Hall grounds; further on on our left the strong Chesterhill British camp was very obvious on a green height, but there was no time to scale it, and we came out on a point, where we saw up by Shield-aykes (the old Swinleys and Swinlescheles), and looked across to the moory and grassy ground beyond "the

Glantleys.”* Of two old places of this name only the cottages now remain; the ground, like that of most of the surrounding farms being laid down to pasture. Not far from us, on the side where we were was Frith,† and Greens lay nearer to Newton. These and Overgrass‡ that we reached next, are relics of a very early period of cultivation here. Passing Overgrass—a decayed place—we descended a lane, the sides of which were much overgrown by wild roses, and neglected thorn-hedges, with trees, several of them oaks, interspersed. These were being trimmed when we were there. We were told that there was one field on Overgrass, that had once grown oaks, which were grubbed up to sow corn. A ploughing day was appointed, but the soil was so stiff, and the ground so rough, that nothing could be effected to any purpose. Next year the process was repeated with equal unsuccess; and then it was left to nature, and carried the name thereafter of “Labour-in-Vain.” It was then annexed to Swarland plantations, which are said to be seven miles in circuit. The old owners of Swarland and “Nimmer house” derived a revenue from the sale of oak timber and bark from their estates, (Tate’s Hist. of Alnwick, II. p. 338).

We joined our dissevered friends at Swarland Burn, whose banks are here well clothed with wood in a charming hollow. We entered at a gate to the peel tower, or “Overgrass Castle,” situated at the upper end of a cultivated haugh. The ruins of this peel are marked in Armstrong’s Map, 1769, but none of the County histories refer to it. There is much *Myrrhis odorata* about the old structure. It is built of large square blocks of sandstone; this rock being close at hand, in the channel of the burn; and along its banks. The cattle vault is still perfect. There is a loop hole or slit for arrows in the east end. The vault is green and grassy all over the upper surface, and there are several trees anchored on its exterior. It is placed in a very concealed position. There are apparently foundations of a bridge

* Glendenleya, as appears by one old writ. The vill of Glanteley was granted with his body by William de Bertram to Breneckburn:—Breck. Chart. No. xxiii. The name resembles Glantedon, or Glantedone, the old form of Glanton.

† Frith a cleared place in a forest, a field taken from a forest.

‡ Originally Overgairs, Overgares, Overisgar’ (clerical error) from *over*, upper; and *gair*, “a slip of tender fertile grass in a barren situation.” “Green gairs” or stripes are common in the hill country on the Borders. In time of Henry III., David le Walays held 40 acres of land in Ov’garis for 10s. (Test. de Nevill).

above it; and there may have been a road to it, down a slack overgrown with rough herbage and bushes on the opposite side. A little farther down is the deserted mill. A curious old "bowie" or milk-dish, of wood turned, in shape of a "milsey," or "milk-sithe" (milk-strainer) was placed outside here to dry; there was also a long swine stone trough, very rude. It was the sort of place for meeting with obsolete utensils and primitive domestic contrivances. The rocks here are usually of a yellowish sandstone. Below the mill there are slabs of red coloured stone in section, followed by a shale with nodules of iron, based on white sandstones. Whether this was the iron ore that was smelted on the upper part of the burn above Canada, where heaps of slags are so numerous, would require much minute search to ascertain. Here the Grey Wagtail was piping uneasily, as if we had approached too near to its nest. Here grew *Carduus heterophyllus*, *Equisetum sylvaticum*, *Epipactis latifolia* (and higher up also), Wood-ruff, Common Polypody, Ivy, native Oaks of goodly size. *Polypodium Dryopteris* is also said to grow on the banks. The burn flowed gently in a pretty naturally wooded ravine as far as we penetrated. Mr Robinson of Newmoor-house had kindly entertained the rest of the company, in the old mansion of the Manerses, which he has purchased, and restored to something like what it was in better days. One of our members writes: "Mr Robinson bought it, and the land, about 1100 acres, a few years ago. It had been untenanted for fifty-two years before that. I saw it about five and twenty years ago, the very picture of ruin and desolation—now it is a very pretty country residence."

Swarland estate, containing about 2585, was for sale in 1874. When it was sold, Mr Andrews bought the central portion, or New Swarland; Mr Robinson, Newmoor House and Overgrass; and Mr Riddell of Felton Park the remainder.

I have not mentioned Camps, as I did not go in the direction where they were said to be situated; but subsequently one very large oval but rather effaced British Camp was examined in the Oxtree Burn field, south of Canada farm. In the centre was a circular raised space, as if once encircled with stones, fifteen yards in diameter, in the middle of which a pit like a built well, covered by a large stone, was opened within memory, and a half brick was found at the bottom. It might not be very old and have been forgotten; or it might be the well of the camp. A smaller circular camp lies in a field close to Canada between it and Snook Bank. A cursory glance at one or two of the old grass

fields there, showed *Habenaria viridis* and *Orchis latifolia*, called here "Cain and Abel" (in Elginshire, Mr James Thomson says it is named "Love and Hatred"), for whose properties see Dr Johnston's Flora of the Eastern Borders, p. 193, under *Orchis latifolia*. *Stachys Betonica* was plentiful. Three if not more burns combine to form the Swarland or Manor burn, which is a tributary of the Coquet.

Newton Hall still remained to be visited. We very much regretted that we had to disappoint Mrs Widdrington, and that time did not permit us to see the garden, then in rich bloom, which Canon Ilderton afterwards assured us had deprived us of a great pleasure. We could only give a ceremonious call, and take a glance at the handsome mansion, and the well-stocked green-house. Among the grass and a profusion of Oxe-eye Daisies by the side of the plantation near the Hall, Mr W. B. Boyd got his eyes on two plants of *Neottia Nidus-avis*, for which we had been on the outlook at an earlier part of the day. This rare Orchis was gathered in 1885 by Miss Hilda Cadogan, in the wood at the north-west of Swarland House. I have seen her dried specimens. Dr George R. Tate records it from the Cawledge woods, where it is rare. Miss Emma Trevelyan (afterwards Mrs Dr Power) long ago got it at Wallington and Capheaton, (Winch's Flora, p. 57).

Felton was reached half-an-hour beyond the time fixed. Twenty-one dined at the Northumberland Arms. Mr Dand exhibited a specimen of iron-slag from one of the heaps at Canada. A very fine oblong hammer head of stone, (of native British origin) perforated for handle, resembling a modern hammer, and finely bevelled on the margins; the aperture wrought from two sides, but not so marked as in other examples, was exhibited by Mr George H. Thompson, Alnwick. It came from the vicinity of Belford. Mr James Thomson exhibited a specimen of *Sirex Gigas*, got in an old stick-house behind Shawdon gardens; where it had issued from the old wood. Of date 6th July, Mr H. H. Craw sent me three from West Foulden, caught the previous day in a loft of one of the farm-cottages, where there were quite a number of them. Mr Craw's were darker hued than that from Shawdon. Mr George H. Thompson brought to the notice of the Club, that the sea-fowls' nests at the Farne Islands, in the absence of any proper superintendent, had been so robbed of their eggs, by the fishermen of North Sunderland and others, that not an egg was left; and recommended that a

petition should be framed to those in charge of the islands to arrest this merciless pillage. This was agreed to, if it could be ascertained, to what parties the islands were rented.

Under the guidance of Canon Ilderton, the venerable church of Felton was visited. It is not intended to dwell upon it at present; but the monumental inscriptions have been copied for future use. As Mr Wilson says: "It has seen many alterations and additions; and has become in virtue of them almost encased within another church. This is literally the case as far as the porches are concerned. The fourteenth-century builders, who added aisles to the fabric, did not take down the thirteenth-century porch they found on the south side, but enclosed it in their addition; and from it they threw out a second porch, which now gives access to the first." (*Churches of Lindisfarne*, p. 144).

Mr Hindmarsh and I had visited the garden at Felton Park on June 30th 1885. The garden is an old and formal one, with a few surviving herbaceous plants from the days when bedding out was not in vogue. The greenhouses were fairly well stocked with flowers, and fruit was abundant, as well as on the walls. There was a fine brown beech near the house. Some of the Coniferæ were fair specimens, but the Araucarias and Wellingtonias were not thriving. The perpendicular scurs and crumbling shale on the south bank of the Coquet lie opposite, crowned with tall beeches. We crossed to West Thirston to Thirston House. There is a grand Sycamore in a field in front of the house.

A half-effaced inscription on a sandstone slab above the front of Dr Hedley's house opposite the Northumberland Arms, long regarded as inscrutable, has since the meeting yielded to the tact of Mr George H. Thompson. It was represented as being in Anglo-Saxon characters, and to contain the name of A^THELSTAN! Mr Thompson deciphers it as follows:—

RE S
PROVERBS XXIV
VERSE III
THRO' VISD
OM IS AN HOV
SE BVILDED
WITH
DING VNDER STAN
TIS ESTABLISHED.

(Only the large Roman capitals remain).

Mr Thompson says "The inscription is very simple, and the only wonder is that it was considered a mystery at all. The first line would probably be the name of the builder." The house may be as old as the Commonwealth; at least it speaks of an age with reverence for Scripture texts. There is no space at present for the history of Felton, and several other of the places visited.

There were present at this meeting:—Rev. David Paul, Roxburgh, President; James Hardy, Oldcambus, Secretary; Rev. Ambrose Jones, Stannington; Rev. John Walker, Whalton; William B. Boyd, Faldonside; Rev. James I. Dand, Togstone House; Middleton H. Dand, Hauxley Cottage; J. C. Hodgson, Buston Vale; John Hogg, Quixwood; Capt. Norman, R. N. Berwick; G. H. Thompson, Alnwick; John James Horsley, Alnwick; Robert Middlemas, Alnwick, Treasurer; Ralph G. Huggup, Togstone; Edward Thew, Birling House, Warkworth; John Bolam, Bilton; James Thomson, Shawdon; Rev. Canon Ilderton, Ilderton; Rev. George B. Fenwick, Felton; Rev. E. H. Adamson, Felling. Edward Thew, Birling House, and Benjamin Morton, Agent to the Trinity Board, Sunderland, were proposed for membership.

ALWINTON, THE DRAKE STONE, HARBOTTLE LOUGH, HARBOTTLE,
HOLYSTONE, BIDDLESTON.

THE third Meeting took place at Alwinton, on July 27th, under rather unpromising meteorological conditions, but eventually no one had reason to be dissatisfied.

Departing from Biddleston in company with Mr Dodds, who gave us the benefit of his skilled guidance and experience, the farm of Newton was passed, where an oak tree had been preserved by the side of the road, when it was widened, to which the farmer in past times used to come out in the evening from his dwelling near by, and have a smoke and "crack" with his friends or associates. It was scarcely a "kepping tree," but served the purpose of the sod or stone seat outside the door, where ancient sociality was wont to be displayed. Farther on the Newton limestone crops out, and the remains of the excavations in it, and of the hollows where it was converted into lime are still visible. It belongs to the lower Tuedian series, but did not command a remunerative sale. It was impregnated with magnesia. A superior limestone of the Carboniferous series, and much higher

in position, has been worked, also on the Biddleston estate, at East Wilkwood; but not very accessible. These will be noticed in the sequel. We look down into the green hollow where the limpid Alwen flows past Clennell, long the seat of the Clennells, who were here in the time of Edward I., or even earlier. Opposite also is the green back of Lord's seat, and somewhat to the north Clennell Street, a slated shepherd's house, indicates the track of the very ancient line of transit that traverses Kidland, and conducts by Yearnspath to the Windy Gyle and Cocklaw-foot. Howsden or Hawisden Burn, where it issues from this green range, creates a gap; on the N.E. side whereof upon a platform a very distinguishable British Camp is placed. The hill flanks near this exit are strongly marked with transverse balks of old cultivation, simulating ancient lake margins. Several of them higher up the Coquet actually appear to be relics left by collections of receding water gradually diminished. Beneath these, in more modern times, the land had been held in run-rig by two brothers, James and Thomas? Selby; and the spits were laid out on a plan, James's and Thomas's alternately. James lived in the old Hall at Alwinton. The joint property was purchased by the Biddleston branch. The valley and the haughs have all at one time been under culture, but the surface on the terminal very gravelly banks of the Alwen is very uncertain, and during floods both its waters and those of the Coquet break up and disfigure the loose envelope, which otherwise would be a uniform sheet of grass.

Alwinton lies in an angle among the green meadows, and cultivated enclosures at the foot of Paspeth. Instead of the picturesque village, with the houses disposed in all sorts of positions—it did not matter whether the front, the back, or the corners, faced the road—the Club saw on their first visit in 1868, the houses much lessened in numbers, are now in regular ranks, and mostly newly erected, except two thatched ruinous cottages. The Hall has been long gone, and its site is now marked by three or four old sycamores and ashes among whose branches the wind sings its requiem.

The malt-barn, whose gousty chambers and lofts old people still describe with a lingering fear are also swept away. The mill buildings still farther up, are now rendered subservient to pastoral exigencies. The inns have been renovated. The old dwellings had oak-frames which were fastened into the ground, and upheld the wattled and thatched roofs.

Looking up the river, the mouth of the deep sunk Barrow Burn opens above the haughs, and on the opposite side of the Coquet. The Barrow mill is snugly placed within a margin of deep green and well cultivated ground. The ruins of the "lytle fortresse" of Barrow "upon the south syde of Cokett," if there are now any, are invisible from the road. The broken-up Barrow Scraggs with their fresh green native trees, ashes and birches, and elms adjoin. Next come the steep Barrow Scaurs, with their lines of hard limestones and sandstones, and broader bands of shales, belonging to the Cement Limestone group (Tuedian). They are mostly bare of trees, and are heather-topped.

Amidst these sequestered scenes, we found the President and several other members who had crossed the hills and wilds from Scotland, on the previous evening; an invasion the inhabitants had not looked for; the advent of so many strangers, most of whom were clergymen, being regarded with wonder. Breakfast was scarcely dispatched, and the day's route planned and entered on, when the carriage containing the Alnwick division appeared descending the steep road from Newton. They joined us afterwards at Harbottle. Proceeding, the *Geranium pratense* was in rich bloom and profusion (a pink var. near Linnshiels). [This plant by a lapse of memory, is invariably written *dissectum* in the Address of 1868, vol. v] Wormwood was also present, and any amount of "Good King Henry." In the meadow grew a very gay var. of *Achillea Millefolium*; pink flower with white eye; of which more was seen next day above Linnshiels farm. It is often seen in gardens. Passing the Church for the present, and crossing the bridge, we had on the Coquet on our left a shepherd's house, and a narrow stripe of meadow called Angry-haugh (from a German source, *Anger*, a meadow, the green plot of a village, a pasture-ground) formerly part of Biddleston, but now transferred by purchase to Harbottle Castle estate. The Coquet was very contracted, and full of "Crow-silk," or "Ladies' Soap," (*Conferva rivularis*). We now enter between fir and pine plantations whose undergrowth is mainly young birches, either sprung from old seeds, or seeds brought by birds. There is a heronry in the woods here, and their continuation towards Harbottle. They nest upon the fir trees, only a single nest, not two or more, I am told, being affixed to each tree. Great battles sometimes ensue between the quarrelsome inmates. On one occasion

recently, an expelled pair left the heronry and built on a tree in front of Harbottle Hall.

Before reaching Harbottle, the party at the end of the plantation on the right hand, turned up into a green field to ascend to the Drake Stone, passing into a bare rock-strewn moor, up a narrow sometimes stone paved foot-path. Most of the hill-stones were "yird-fasts," but the loose ones were considerably rolled and rounded. From this track we looked into all the fern-clad gullies over the broad concave face of the Beacon crags, with their sprinkling of mountain-ashes. Near the top, the dwarf bilberry excluded the heather, showing that we had reached its limit. The Drake Stone, an immense mass thirty feet high, appears to be part of the rock of the hill. The seams in it present much false bedding. Mr H. Miller when mentioning the perched-blocks and ice-moved stones of the district, thus refers to it: "The Drake Stone of Harbottle is a gigantic semi-detached block of grit close beside its out-crop, perhaps shifted a few yards by ice, or perhaps by the downward *creep* due to changes of temperature." (Memoir on the Geology of Otterburn and Elsdon, p. 105). The rocks all round Harbottle are of the Fell Sandstone. We had no time to scrutinise the extensive view of Upper Coquetdale mapped before us. Rain was gathering over the heights above the Wilkwoods, and we hastened down to see the tarn in the hollow gorge beneath us, before it should reach us. The malevolent spirit of the lake would not permit its secrets to be revealed, without a protest, and had summoned the moist mists of the south-western hills to its succour. A stretch of long heather, and of sphagnum, marking a former extension of the lake, intervened. The way led across rocks, or along narrow footpaths strewed with fine white sand, or rounded quartz pebbles, the residue of ancient rock debris. *Drosera rotundifolia*, (Sundew), and a dainty tawny Agaric grew among the Sphagnum. Buckbean, *Equisetum limosum*, and a *Carex (vesicaria?)* each of different shades of green, grew on the south and west margins, and crowberry and rushes where it was more solid. *Erica tetralix* with white blossom was gathered. The lonely tarn is of considerable area; the water is always pure, there being a spring in the centre. No Diatoms could be detected in the Sphagnum. The depth of water is unknown. It used to be said that the water is so cold, that those who attempt to swim across, receive such a shock, that they are paralysed and sink. There is no recollection, however, of any

who have tried the experiment, having been drowned, and several have accomplished the feat. Some will say that the water which has no visible outlet permeates the intermediate strata, and re-appears at Our Lady's Well at Holystone. The pebbly sandstones of the Fellstone series, "are sometimes," says Mr Miller, "gritty enough for mill-stones, like the pebbly grit of Millstone Edge, beside the gloomy tarn among the Harbottle Hills. Discarded mill-stones* can still be seen lying about the 'Edge' in various stages of manufacture." The sand on the shores of the tarn is described as "sharp and suitable for scythes." (Memoir, etc., p. 122). There was barely time to note the lichens attached to the peaty soil and the surface of the flat rocks; such as *Cladonia furcata*, *Sphaerophoron coralloides*, *Parmelia saxatilis* and *P. omphalodes*, a dark thallused *Lecidea*, and *L. geographica* (no doubt there are plenty more), when the blast swept down upon us like a fury, and every one crept as far as he could out of its reach into the rock-crevices. A fine range of white sandstone cliff like a built wall, crossed horizontally a long black ridge in front of us, with subsidiary shorter ranges, reminding one of a display of broken auroral clouds; the interspaces between them were of black heather. A Ring-ouzel crossed over us, and several Meadow Pipits rested on the heather.

The mists lifting intermittently revealed that the hill we were on, was isolated by a deep interval from the lower heights opposite us in the south-west, on which the trees and cleughs and the two shepherd's houses of East and West Wilkwood, amidst a stretch of green pastures, showed a much more attractive aspect than they wear when they come out in broad daylight. We had intended on leaving this rocky environment to traverse, if we found them passable, the heathery or bare heights, between this

* Owing to the rain and the hasty retreat the site of the quarry for mill-stones escaped observation. "It is cut out of the side of the hill," says the Rev. A. Scott, "and is square in form, and near the entrance are lying two mill-stones, about 4 feet across and 12 inches deep, apparently ready for removal, but they seem to have lain many years in their present position." (Guide to Rothbury, p. 30). Mr G. H. Thompson supplies fuller information about these mill-stones. "Along the west side of the lake mill-stones used to be quarried. I counted twenty one morning, unfinished; some of them partly formed in the solid rock. They were used in the mills at Holystone, Barra (or Barrow) and Netherton—mostly for barley. For shelling the barley they were used perpendicularly, for oats, horizontally. This I had from Robert Simmons, a man of 70 years of age, who himself remembered their being in use."—(Sept. 12th 1883).

and the Dove's Crag, and then descend on Lantronside, but we soon became aware, that crouched though we were, like a troop of "Brown men of the Moors," in the hollows of the rocks, the shelter was inadequate, and that we were gradually getting soaked through; so bidding adieu to

"That lake whose gloomy shore,
Skylark never warbles o'er,
Where the cliffs hang high and steep,"

we arose with one accord, and speedily put the Drake Stone between us and the bitter gusts from Redesdale. After this preliminary adventure, we were soon snugly housed in the two Harbottle inns, till the rain mitigated or became bearable, and our clothes were dried. Our friends from Alnwick arrived at this juncture, and were rather surprised to find how comfortably we were installed. We had dropped in on the proper quarters, for our host was a taxidermist, and brimful of the zoology of the district, and exhibited several rare specimens of native and exotic birds. Some notes that he handed us, will subsequently appear.

Harbottle is a small village, on each side of the public road, lying in a hollow—being built above or parallel with a buried channel of the Coquet before it adopted its present eccentric course, (H. Miller, p. 120)—and sheltered by the green mound of the famous Border fortress. Most of the houses are new and well built. The castle-mound is either green and grassy, or its slopes are enriched with thriving gardens. Most of the fragments are shapeless pillars, or splintered tottering masses. A lengthy division wall is entire. There is a monument to Mrs Clennell at the village-well. Mr Clennell has now purchased most of the property in the village. The Presbyterian Meeting-house is new, and the manse, a picture of comfort and cheerfulness, is placed aloft in a green field near the plantation, by the side of which we made the ascent to the inhospitable tarn sentinelled by the Drake Stone.

There was a chapel once attached to the castle, of which the foundations were laid bare when forming the gardener's lodge, which stands at the entry to the grounds of Harbottle Hall. Mr Joseph Oliver furnishes me with some notes, worthy of preservation, of some Antiquities found or preserved here, or at the Hall when his brother was gardener. His brother left Harbottle Castle in 1883, for Beaufront Castle. The notice is written by his nephew.

"There is a Barley Mill and a Font near some rock-work in front of the gardener's cottage, which stands on a piece of ground, sloping up from the avenue. The Barley Mill is about 18 inches high, and about 12 inches across. It is not very old. The old Font was given to my father, when making the rock-work in front of the cottage, by the late P. F. Clennell, Esq. Mr Clennell never said what it was, or how it was got. This font is about 4 inches deep, and about 6 inches across. [From a sketch this appears to be of old workmanship; but is too small for a font; a holy water vat?]

The late Mr Gideon Pitloah, who died about 1871 or 1872, and whose age was over 90 years, could remember when the piece of ground in front, and S.E. of the cottage was called 'the Kirk Knowe.' He described it as a piece of bare ground with the exception of a few trees. Here, when the workmen were laying water-pipes to the Hall, about 1871, they dug up a skeleton about 2 feet from the surface; it was found with the feet pointing to the East, showing that it had received Christian burial. The place was about 4 feet from the wall, and at the foot of rising ground on the South side of the Avenue. It is all trees and shrubs now.

Thomas Charlton, joiner, who lived opposite the gardener's cottage, when digging a foundation for a shed beside his house came upon an old Sun-dial. Mr Clennell saw it and bought it from him, and kept it some years in his work-shop, but one day when the gardeners were clearing the rock-work, N.E. from the front-door of the Hall, where a favourite dog was buried, Mr C. brought it out and gave it to them to put on the rock-work. It is very much defaced, about a foot high, and 3 inches thick." Old dials are always worth looking after.

The policy is screened with tall trees: the Hall or Castle is a commodious and comfortable mansion of hewn white-sandstone, standing amidst a wide grassy area. The New Hall of the mansion was offered by the proprietor to the Club to dine in, had the inn at Alwinton proved to be insufficient to accommodate the company.

In the open space behind the village, are several small grass fields, or compartments under culture, none of them particularly thriving, for they lie on a stony moor edge, which has not the richness of an oasis. Above them we look up to the heights roughened with piled up boulders, and crowned with castle-like crags, with ferny stripes and clusters in the deep hollows; broken lesser crags crossing the concave steepes; full-leafed and full-branched mountain ashes rising in solitary glory in the ravines; and brown patches of heath sprinkled over the barer eminences; all combined in one wild and rugged picture of savage grandeur. When visited in the end of May 1886, a patch of snow remained unmelted in one of the fissures, and snow-teeth glittered like

diamonds from among the boulders beneath the cliffs, and fed by these resources a bright thread of water, in a series of falls, flashed out in the sunshine, appearing or disappearing all down the rough descent.

We had scarcely reached the shelter of another Scots fir plantation, when the rain burst over our heads once more, but with backs placed to the walls, and umbrellas and top-coats, we were now impervious to wet. Here again young birches formed the underwood. Again on our way, we gained a free view alongside a line of new plantations on the right hand, and a cultivated farm on the left hand, partly a new intake. A few Junipers, like gleanings of the vintage, still remained unextirpated. Here in 1886, the farmer was using a small primitive barrow to sow turnips, with only one seed canister, that sowed a single drill at a time; a small roller being attached behind. This had come from Long Framlington, where I was told, wooden ploughs with wooden mould-boards were still in use in 1848.

In the heathery space on the right hand, the young fir-trees were planted among Bog-Myrtle (*Myrica Gale*), and several patches had died out; neither will they readily root among long heather. The Bog-Myrtle is very prevalent between this and Dues Hill. Early in the season it has a brown withy-like aspect, but later on it is distinguishable afar off by its verdant plots among the heather. Sheep eat it, but it does them harm. The shepherds endeavour to keep it down, by cutting it with scythes. More towards the rising ground, Mr Dodds informs me that both Scots fir and Larch had sprung up among the heather from cones scattered from adjoining plantations. He did not succeed with these heather-nurslings when transplanted.

We next passed some well-grown woods of oak and birch. This is the shooting estate of a Newcastle owner. We reach Woodhall, which has a modern look, but shows above the door of the principal house, an inscription, E. H. F. H. 1650. The tradition is that these parties were cousins. In 1663, Edward Hall is rated for Woodhall: annual value £20. (Book of Rates, in Hodgson).*

We now crossed by a field path to the Holystone well. Brambles

* In 1618, in the Rental of the Lordship of Harbottle, in Woodhanghe alias Woodhall, Giles Hall paid at the feast of St Michael Tharchangell xijs; and George Hall, viijs; Summa, xxs. (Arch. Ælian. ii. p. 337); and there is a subsequent entry of Lease Lands in Harbottle paid at Whitsontide and Martilmas, Giles Hall and George Hall for the third parte of Woodhall, xls. (p. 338). Were these the ancestors of E. H. and F. H.?

and *Equisetum sylvaticum* were noticed in the hedge bank. A good deal of *Bartsia Odontites*, and *Prunella vulgaris*, called here "Poor Peter," had sprung up in the intervals of the grass. On the clayey soils on these white or yellow sandstones, grass does not cover well in to exclude these tokens of barrenness.

The present exterior of the well of Paulinus, or Well of Our Lady, is entirely modern and artificial. A quadrangular pond of excellent water, walled with ashlar and paved at the bottom, has a great stone-cross erected in the pool, and at the south end, a statue of Paulinus wearing a wig; and is sheltered by a group of trees of no great age. The effigy of the saint is believed to have been made by one of the masons who sculptured the figures on Alnwick Castle, and others at Hulne Abbey. The statement by Mackenzie, (Hist. ii. p. 45), and repeated to a similar effect in an inscription on the cross, that here, "according to Venerable Bede, did Paulinus baptise 3000 persons, on the first introduction of Christianity," nowhere appears in the works of that earliest of English Church historians.* St Mungo also has a well here, whence we might infer Cumbrian influence to have extended here, earlier than from York.

The heather-clothed Holystone Beacon overhangs the bare brown Holystone Common, by one of its spurs, Dues Hill. This ground has been looked at, as far down as Swindon—a fine mixture of white, pink, and full purple Foxgloves near Will Allan's old homestead, Woodhouses Peel, must not remain concealed—but the Club's excursion terminated at Holystone. Some of Canon Greenwell's successful excavations were on Holystone Common (see Club's Hist. x. p. 318.)

Holystone is a small crowded, cramped, decaying village, with most of the old houses down or unroofed. Sites still sell dear for building cottages on, although apart from lodgings there is no work. The older generation lived by grazing cattle on the common, chance work, and poaching. The gardens are skilfully cultivated—and productive in vegetables, and flowers that bring honours to their growers. *Sempervivum tectorum* studded several roofs. The roofs of the dilapidated cottages had been wattled and thatched.

* The fable originated from a misappropriation of Bede's words, (Eccl. Hist. B. ii. chap. xiv.) when Paulinus baptised on Easter day, 627, at York, King Aeduini "in the church of St Peter the Apostle;" not at "sancta petra" or Holystone. (Stevenson's Bede, p. 379.)

On reaching the church we were greatly pleased to meet our Otterburn friend, Dr Robertson, who had to ride nine long and weary miles, on tracks bad to follow before reaching Alwinton. The memory of the Elsdon and Otterburn meeting will remain always green. The Church and churchyard were examined, but as nothing new could be either said or seen, I will quote Mr F. R. Wilson's account of the Antiquities disclosed on its restoration.

"The walls of the nave, except the two topmost courses, are ancient; the original window sills are in situ, nearly 2 feet below their successors; and there are traces of an ancient door on the north side. The upper part of the west gable and the bell-cot above it, are a later construction, for they are not of the same thickness." "Built into the south wall of the chancel are three sepulchral crosses, more or less perfect. A missing fragment of one of them has been more recently found, and built for its safe keeping into the church-yard wall opposite the church door. In the course of the restorations, a large stone coffin with a coped lid was uncovered, and found to contain two skulls and other bones; and two ancient tombstones, with large incised crosses rudely executed, are still to be seen in the church-yard."--(Churches of Lindisfarne, p. 99).

Major Thompson has favoured me with drawings of these crosses; but since then another has been detected. About this and other relevant matters I have been instructed by a letter from Mr John Nicholson, Low Farnham, dated June 18th, 1888.

"You may remember there was a projection on the corner outside the church near the door, that there was some speculation about when the B.N.C. visited Holystone. I have been making inquiries about it, and old Thomas Rutherford tells me that there was once a Sun-dial upon it, and he also tells me that when the church was restored, on excavating the place where the chancel now stands, the workmen found an arch that had fallen down apparently in one piece. There seemed also to have been another arch springing from the same pillar as this one, but going in another direction. Some of the crosses built into the chancel wall were found inside the church, and old Tom believes one of them was lying in the churchyard."

"One of my boys, a short time ago, discovered a cross carved on a stone that had been built into the gable, inside one of the old roofless cottages standing near the church. It is a very beautiful cross. There is also a sword, but the stone is broken off by the lower part of the cross, leaving little of the shaft remaining. There is also a carved stone lying near; it has been the half of a window head, which has been also in the form of a cross. It is a pity but you could get a drawing of the cross in the cottage wall, as there is no doubt but it has belonged to the old ecclesiastical buildings."

In an old stable situated opposite the mill, is the segment of an old arch in the west gable, which is part of an ancient edifice once pertaining to the Nunnery. In the garden behind it, once

stood a line of walls of the offices, where the buildings were very extensive. It is now a potato-garden, bearing a luxuriant crop of foliage. In the stable was suspended a pentagonal sandstone, with an artificially drilled hole in it, near the broadest end, pointed out as a "witch-stone" to protect the horses; also an old iron key, very simple, adapted for a lock of two wards. On entering the adjacent mill, the original purpose of the holed stone was soon apparent; for a similar but heavier stone of a coarse grit was attached by a rope to a portion of the mill works, as a weight to regulate the flow of the water; the heavier the weight the supply was increased. The witch-stone of the stable had been too light. The fittings in the interior of the mill were much older than the recently added, over-shot wheel. The fanners were of an old fashion. The tin basin for moulter was there also. The flag-slatted roof has fallen in, and everything is going to wreck; there being no longer use for a mill here. *Marchantia polymorpha* mantled the walls near the wheel, a common concomitant of old mills in that district. *Geranium pratense* and "Good King Henry" were everywhere. This is a favourite resort of the Pied Wagtails, which were gambolling about full of animation. The burn is margined by alders, and was followed up, till it was entered by Dove Crag Burn. This issued from a cleugh, with picturesquely fractured, steep rocky cliffs of Fell-stone Sandstone, disposed at rather a high angle; closed in and shaded by light native birches, oaks, etc. Campville house stands close beside this dean. The old camp rings in front of Campville are very prominent and entire; and some massive oaks and fine hawthorns grow among them. The beeches are probably of latter introduction. In the sloping meadow in front of the house, *Hyabenaria chlorantha* was picked up, and much purple Betony, on whose leaves Mr Dunlop found *Puccinia Betonica*, which is of some rarity. The Betony had been noticed in a meadow at Swindon lower down on the Coquet; also in pastures at Brown Moor near Harbottle Grange. The President reported *Polypodium Dryopteris* from the cleugh; and *P. phegopteris* grows farther up. Meantime Rob Roy's Cave* was visited, a pretty retired recess, but not a cave; being merely a lower portion of the rock split out as if it had been once quarried, alongside a

* Sometime the Club may return to explore the romantic ravine, which is reputed to be still Fairy-haunted. What is of more importance it is said to be botanically rich.

little waterfall or rapid, near which there were fragments of an old wall of ashlar, as if a dam or boundary had once crossed the burn here. The bordering cliffs were patched with mould-like stains of lichens decaying from growing in the shade; some of them apparently *Lecanora parella*. The plants noted were Herb Robert, *Cardamine sylvatica*, *Oxalis acetosella*, *Circea lutetiana*, Nipplewort, *Lastrea dilatata*, *Athyrium Filix-femina*, etc. The hillside above the house was reported as being rough and heathery. There is a fine oaken wood on the hill above Campville.* In 1663, Mr George Pott of Low and High Trew hitt, Barra, Linshelles, Shumore (Shilmore) and Atheside, or Hereside and Wrighill, held also Lentern Cleugh, the older name of Campville. (Book of Rates). In 1747-8, William Potts voted for Lantronside as a free-hold. (Poll-Book). In 1787, General Forster, removed from Felton to Lanthenside, eager for improvements, or as it is expressed in a contemporary song,

“Barren lands in Lanthenside.

To sow Lucern upon.”

“For now your sterile rocky soil, where stooks were never seen,
Will quickly be converted all to fields of fruitful green.”

“He’ll plant! he’ll plant!”

“With here a hardy plant of Oak, and there a plant of Fir.”

Bell’s *Rhymes of Northern Bards*, p. 195.

This affords a date for an era of improvement, still visible in the trees.

General Forster† was also a zealous antiquary, and formed a valuable collection of Roman antiquities at Campville. He had a small property at Rochester (Bremenium) comprising a portion of the Roman station there; at least adjacent to it; and possibly to preserve the Roman altars, and fragments of sculptured and lettered stones that were lying about, he had them transported to Campville. He appears to have been very persevering as he not only obtained those at Rochester, but to complete his series secured one altar kept in Elsdon church, that had originally been derived from that source. The Rev. John

* In 1618, in the Rentall of the Lordship of Harbottle, for Linterne Heugh, Barthol. Pott paid xxd—Thomas Pott, xxd—Andrewe Pott, xxd. Sum. v.s., (Arch. Æliana, II. p. 330). Barthol. Pott was also rented iij s. ix d for The Hill alias Caresleyfield, xxd for Coxenfield alias Sempfield alias Cleugh brey. (Ib. p. 332); iijs for a parcell of land called Roughfield. (p. 333).

† It is doubtful if old Mr C. F. Forster, though commonly called “The General” was entitled to that rank. He was of the “Buston” family of Forsters.

Hodgson, the historian of Northumberland, visited Campville in 1810, and took drawings of the altars and copied the inscriptions. There were about a dozen, besides fragments. See Hodgson's *Northumberland*, Part II. vol. II.; notes pp. 141-145. The collection was afterwards acquired by the Duke of Northumberland and transferred to Alnwick Castle. There are still recollections at Holystone and neighbourhood of the removal. Mr John Nicholson writes: "Old Thomas Rutherford, the shoemaker of Holystone, tells me that he helped the Duke's men to put the stones into the carts when they removed them from Campville. The Duke sent two carts to Campville for the stones, but these could not take them all at one turn, but had to go back a second time, and old Tom was there on both occasions, and helped in with the stones. One of the slabs was lying in the dene against the fence; the others were standing at the end of Mr Forster's house." Apparently they had become neglected; the General's successors having felt no interest in them. The Roman road (Middle Watling Street) passes close beside the camp. A notice of it from Mr MacLauchlan's *Memoir* appeared in *Club's Hist.* vol. XI. p. 298.

Campville now belongs to Major Thompson, who proposes occasionally to reside there, and while there intends to promote the objects of the Club in that neighbourhood. He has favoured me with a plan and measurements of the "Hare Cairn," a collection of stones on Lanternside, near Campville.

Mr Nicholson pointed out across the Low Farnham ground on the opposite side of the Coquet, but lower down, two or three tumuli that still remain unopened beyond the march wall in a high lying field on Hepple. He mentioned also that recently a coin of Domitian had been obtained somewhere near Hepple by Mr Cecil Hedley.

Most of the party returned by the road nearest the Coquet, where the river is seen winding in all directions in a wide low valley; often lawless, and strewing the grassy flats with gravel and sand, or during floods filling the swampy pools with new supplies of water to the comfort of the snipes and other aquatic or semi-aquatic birds that frequent them. Here by a little oak wood fringed with salallows on the west side of the river, below Sharperton bridge, I observed a small party of migrant Whinchats that had just arrived on May 28th, 1886—late comers, but early enough for the moor-edges, where the brackens are often late in furnishing cover.

There is a good section of Tuedian rock, bands of cement stones, clays, shales, and sandstones above the bridge at Sharperton, which is being undermined by the river, several of the trees from the little wood overhanging it, being swept away. There is another instructive section lower down the river. Mr Miller's valuable Survey gives the particulars of both—p. 13. *Plantago media*, a limestone-plant, grows at Sharperton. The old "strong-house" slated with sandstone slabs, and with walls six feet thick, is still entire, and inhabited by the proprietor. Above the doorway, according to Mr Dixon, are cut the letters

C. P. E. P. 1675.

ROGER POTTS.

In 1663, Roger Pott was rated on an annual rental of £6, and George Pott of £12 at Sharperton. (*Book of Rates*.) Several of the adjoining houses apparently of equivalent age are now dilapidated. Among their ruins, in passing, I got a glance of an apparently carved stone, which Mr Nicholson afterwards examined, and assures me is a delusion, and a trap for Pickwickians. He was fortunate in finding something better, which I willingly record here.

"There is an old carved stone built into the wall of the saw-mill at Sharperton. It is apparently the head and bust of a female figure, with a sort of hood over the head; and was discovered in an old stone-fence, some years ago, at Sharperton, and built into the saw-mill to preserve it. The stone seems very old. You cannot make anything of the features of the figure, as the stone has suffered much from the action of the weather. There is no inscription on it."

Alwinton church was visited by the party on their return route. The slope beneath which it is sheltered, called Parsonsides, is marked with great balk-like ridges ploughed by oxen, bounded by equally prominent head-ridges drawn transverse to those on the slope. The church has been recently refitted, greatly to the advantage of its internal and external appearance. It is hoped the Rev. H. E. Henderson will give the Club a paper on the church, as well as on other local subjects. A holy water stone was found in repairing it; and other points of architectural or ecclesiastical significance were brought to light or set in their proper place during the process. In the foundation two large blocks of stone dressed in a decussated manner, with much resemblance to Roman workmanship, were revealed. Examples of Roman stones, crossed in a similar fashion, are preserved by having been built into Hexham crypt. (See Dr Bruce's Wallet-

Book of the Roman Wall, 1st Ed. p. 88.) As ready hewn stones, they might possibly have been brought from some structure on Middle Watling Street, which traverses part of the parish.

After dinner, which was at Mr Martin's, Rose and Thistle Inn, Mrs George Muirhead was proposed as a Lady Member. The terms of the Memorial to the Ecclesiastical Commissioners, and the Thorpe Trustees for efficient protection of the Birds on the Farne Islands were adjusted by Capt. Norman and Mr G. H. Thompson, and adopted. This was subsequently duly forwarded, and favourable replies were received. New leaseholders now hold the islands, by whom watchers are appointed to prevent lawless depredations on the birds or their eggs. The heavy fines imposed by the application of the Wild Birds' Protection Act have also acted beneficially as a deterrent.

The health of Mr John Nicholson, who was present, was proposed by Dr Robertson, to which Mr Nicholson when replying related how from a hint dropped by Canon Greenwell, that every dressed piece of flint found in a field was valuable as a historical exponent, he had been led to pay such close attention to flints, that if they had been gold and silver, he would now by the quantity he had amassed, be a wealthy man. In addition to those described by Mr Dixon and figured in the Club's Hist. vol. x. pp. 347-9, Plates VI and VII., he now exhibited a large bagful containing hundreds of examples, all picked up on Low Farnham. His new series consisted of several large spear-heads and thumb-flints, and knives fashioned out of thin slices, and numerous fragments; also he had got half of a stone-axe or celt.

Dr Robertson had reported by letter that with Mr R. Burdon Sanderson he had spent a day on Mr Sanderson's place, Davyshield, near Otterburn, in digging about some small stone circles on the moors, and also opening some small burial cairns, but the digging discovered nothing, all the cairns having at some previous period been opened, and the larger slabs abstracted for building purposes.*

There were present at this meeting:—Rev. David Paul, Roxburgh, President; James Hardy, Oldcambus, Secretary; Revs. R. H. Williamson, Whickham; E. H. Adamson, Felling; Canon

* Inquiry had been made in 1886 at Mr Burn, Alwinton, about one or more large Red Deer Antlers found on his property. It is a long time since *they* were got by a drainer when draining a meadow between his house and Alwinton village, and were broken in two, and the man got *them* away. This is all that could be ascertained.

Edmunds, Kylvie; Evan Rutter, Spittal; H. E. Henderson, Alwinton; William Snodgrass, D.D., Canonbie; Charles J. Cowan, B.D., Morebattle; George Gunn, Stichell; Peter McKerron, Kelso; Capt. Norman, R.N., Berwick; Adjutant Macpherson, Melrose; Dr E. C. Robertson, Otterburn; Dr Edward Johnson, Tweedbank, Kelso; D. D. Dixon, Rothbury; W. T. Hindmarsh, Alnwick; H. H. Blair, Alnwick; G. H. Thompson, Alnwick; James Lesslie Newbiggin, Alnwick; A. M. Dunlop, Ashkirk; Peter Dodds, Biddleston and John Nicholson, Farnham, as visitors.

There is no room here for many more observations made on this occasion when staying at Biddleston. I may, however, state the result of a short visit along with Mr Dodds to the upper part of Biddleston woods, and an examination of the plants among the rocks at the base of Coldlaw, that springs up to a great altitude immediately behind the plantations, where I was unexpectedly brought into contact with an Alpine Flora in close contiguity with the cultivated fields of agricultural Coquetdale. The dean or cleugh behind the mansion consists of sandstone rock, mostly lying at a low angle; and being dry, Nettles, Herb Mercury, and *Circæa lutetiana* are prevalent. *Saxifraga umbrosa* was planted out by the late Mrs Selby, and thrives. Other plants noticed were *Geranium pratense*, and *G. sylvaticum*. The cleugh opens out to a great open glen with steep grassy sides, ascending far up to the Black Butts, where the gaping peat rifts are very visible about the head. Behind it lies Wheelhope in Kidland, a chief resort of foxes. The bare scaurs and dwarf crags of reddish porphyry rock here are well coated with lichens, and when we visited them were very dry, the snows that nourished them having long since gone. Wild Thyme and *Galium saxatile* were abundant; tufts of *Asplenium Trichomanes* grew not uncommon in the shadiest chinks of the rocks; and near the base, Foxgloves and Ground-Ivy; and *Polypodium vulgare* was frequent. The rarest lichen was a creamy white one, granulose in the centre, foliaceous at the margin, viz. *Squamaria gelida*, which grows sparingly also on similar rocks by the Alwen below Puncherton Crags, and above Shilmore on the Coquet. It was once found by Mr Jerdon at Glenburnhall, Jedburgh. (Hist. of Club, vi. p. 436). Other lichens were *Peltigera canina*, *P. olivacea*, *P. saxatilis*, *P. omphalodes*, *P. conspersa*, *Lecidea geographica*, *L. rivulosa*, *Lecanora parella*, and *Calloporisma vitellinum*. *Jungermannia ciliaris* was

gathered. The mosses recognisable were: *Andreaea alpina*, where water trickled over rocks in winter; *Bryum alpinum*, with beautiful play of colouring; *Cynodontium Bruntoni*; *Hedwigia ciliata*; *Racomistrum heterostichum* and *R. lanuginosum*; *Zygodon Mougeotii*; and *Rhabdoweissia fugax*, which occurs also in the Bizzle. Altogether there was a curious intermixture of alpine or sub-alpine and low country plants.

Mr Dodds procured from Mr McSwarbreck, analyses of two of the Limestones already referred to on the Biddlestone estate, those of Newton and of East Wilkwood, the latter also corresponding with that of Yardhope. These although already printed in the Geological Survey, (pp. 12, 66) are here renewed from original copies.

NEWTON LIMESTONE.

Report on Analysis of Limestone, received from Chas. McSwarbreck, Esq., August 1872.

The Limestone contains—

Moisture, etc.	...	...	1.84
Carbonate of Lime	...	...	68.18
Carbonate of Magnesia	...	...	19.74
Sulphate of Lime	...	...	3.74
Phosphate of Lime	...	...	0.27
Silica	...	...	2.89
Oxide of Iron	...	...	0.40
Alumina	...	...	2.50
Alkalies	...	...	0.44

100.00

The Analysis shows that this is a magnesian limestone, of which fully two thirds consist of carbonate of lime, and about one fifth or about 20 per cent of carbonate of magnesia. It is therefore a magnesian limestone, containing a considerable proportion of magnesia. This would not detract from its value for Agricultural purposes, though it interferes with its ability for other purposes.

27 Commerical St., Leeds.

THOMAS FAIRLEY.

August 15th, 1872.

YARDHOPE OR EAST WILKWOOD LIMESTONE.

Analysis of Limestone received from Charles McSwarbreck, Esq., Sowerby, Thirsk, April 1873.

The limestone contains—

Carbonate of Lime	...	94.19 per cent.
Carbonate of Magnesia	...	4.05
Siliceous Matter	...	1.76

100.00

The siliceous matter contains—

Silica	...	...	...	0.926
Iron (estimated as Alumina)				0.404

The limestone contains traces of phosphoric acid amounting to nearly half a per cent. reckoned as phosphate of lime.

The large percentage of carbonate of lime and the small percentages of other substances render this limestone a very excellent one for Agricultural as well as for other purposes.

THOMAS FAIRLEY.

April 25th, 1873.

I also annex Mr Miller's answer to some inquiries I had made before I had the opportunity of consulting his valuable memoir. "The non-magnesian limestone from near Wilkwood is the same as the Redesdale Limestone of North Tynedale and the Dun Limestone of North Northumberland. The other [the Newton Limestone,] as you surmise, is much lower in the series: for while one marks the base of the *Calcareous Division*, the other is far down in the *Tuedian Division*. In Coquetdale the latter is divided into Upper Tuedian or Fell Sandstones (a group very constant all through Northumberland), and a Lower Tuedian, commonly called the Cement Limestone group. The latter includes an unusual development of Limestones in Coquetdale, which I have termed the Rothbury Limestones. Your magnesian limestone (which I presume is the same as the "Newton Limestone" of my Memoir) is one of the lowest of these, and is therefore very far down in the Tuedian Division indeed. The Sandstones of Selby's Lake, Harbottle Lough, and Rob Roy's Cave are Fell Sandstones or Upper Tuedian. The coal seams at Wilkwood are partly at the top of the *Carbonaceous Division*, partly near the bottom of the *Calcareous Division*. There are three seams—each curiously enough described as 13 inches thick. The sandstone at Rob Roy's Cave occurs at the bottom of the Upper Tuedian." For more explicit information see Mr Miller's Memoir.

STOW.

THE account of this meeting will consist of the Report of Mr James Wilson, editor of "Scottish Border Record," who had a previous knowledge of the ground, to which most of the others were strangers; corrected and enlarged and supplemented by my own remarks and information from local sources, and by a letter from the Rev. J. M. Robertson of St Ninians, Stirling; formerly parochial minister at Stow, containing a list of several of the Fungi of the parish, and remarks on the antiquities of the district.

The fourth Meeting of the Club was held at Stow on August 31st. A considerable quantity of rain had fallen early in the morning, the barometer pointed to a low figure, and for some

hours after sunrise much low cloud portended immediate rain. These conditions, no doubt, tended to lessen the number at the breakfast table, set in Mr Russell's hotel at nine o'clock; but sixteen gentlemen, in good spirits and under that genial feeling which club association generates, assembled at the breakfast table.

The Rev. Mr Workman kindly accepted the duty of cicerone for the day, and the party, after breakfast, proceeded to view the local ruins—survivals of a time when ecclesiastics were lords temporal as well as spiritual of the adjacent territory. The ruins of the but recently abandoned Parish Church were first inspected. Its architecture is of various types and several periods, a patch-work of successive generations, the foundation at one angle so archaic as to suggest fabricators who had never heard of any style; on the whole, a church designed for use and not for admiration, yet in some of its parts good solid work, with traces of the Norman, though of the plainest. The most notable fact the pile presents is the apparent absence of a chancel in the oldest, and certainly pre-reformation portion of it. It is recorded in the session memoranda, that in 1627 an assessment was imposed for the erection of a bell-house on the church, and there can be little doubt that this was the belfry now forming the apex of the ruins. The assessment also provided a new roof of thatch and other repairs on the building. “The Primitive Church of Wedale,” writes Mr Craig-Brown, “treasured what was believed to be a fragment of the true cross, brought by King Arthur from the Holy Land, and its peculiar sanctity on this account was enhanced by the privilege of refuge which it possessed in the time of King Malcolm the Maiden, or before it.” Of this church the ruin is, no doubt, successor by unbroken descent, and part of its walls are old enough to point to a time when the priesthood had not ceased to believe in true fragments of the cross.

An adjacent ruin, traditionally designated “the Bishop's House,” was the next object of critical inspection. It is throughout built of the grey Silurian grits of the neighbourhood, without trace of ornamentation, is of small dimensions, having had many small rooms with low ceilings, and is suggestive of anything rather than of a mediæval Archbishop's palace. It has not a single characteristic of the Border peel, excepting the material of which it is built, is evidently of considerable age, and is supposed to have been the residence which gave the name “Stow” (choice

place) to the hamlet straggling up the burn side, and the seven miles or so of the valley forming the parish. At an early date the church belonged to St Andrews, and was served by a resident vicar; and this building may have been the dwelling of that functionary. We believe it is matter of history that St Andrews' bishops dated land charters at Stow, but that implies only occasional visits to the place, and it is more likely that the building was erected for a vicar than as an episcopal residence.

The party then visited the new parish church, situated among artificial terraces, which present a confused combination of right lines and curves so discordant as to be displeasing to the eye. Curves are generally pleasing, and horizontal or other right lines, though stiff, suggest order; but a pleasing mixture of both is beyond the reach of art. The exterior, and especially the interior, are fine, considering that it is a rural parish church. The cost was about £10,000 and of this the Lord of the Manor, the late Alex. Mitchell, paid two-thirds. In the session-house, the party was shown a portrait of the late Mr Rutherford, minister of Channelkirk.

Nearly opposite the church and spanning the Gala, is a ruinous stone bridge of three arches, six and a half feet wide between the parapets. It is not older than 1632, for in that year the heritors of the parish met to confer on the erection of a bridge over the stream. This was looked at in passing on the way to Torsonce.

A little farther down the haugh is "Our Lady's Well," a survival of a more superstitious period. We believe this is a genuine relic, as the water is enclosed in great stones. The late proprietor of the grounds, Mr Henry Inglis, put a substantial arch over the well, and enclosed it with a fence.

Miss Milroy having given the party permission to walk through Torsonce policies and to visit the house, the botanists of the party were for some time engaged with the flora of the locality and garden. Among other articles of interest shown in the mansion, were a pair of Italian communion cups of silver, set in golden stands, on which is some beautiful floral chasing. They are assumed to be of the 13th or 14th century. The only rare plant picked up was the *Asplenium*, popularly known as wall-rue. According to the author of "*The History of Selkirkshire*," Torsonce is a notable place. In the 14th century the name of the estate was Hoppringle, and was the cradle of the numerous and

powerful family of the Pringles, who in subsequent years found comfortable nests for themselves all throughout half of the Border counties. The original residence would be a Border peel on a then craggy and bare hill side. Torsonce mansion stands on the foundations of the old peel, a pretty edifice of red brick with white freestone angles, with a finely laid out garden on the south-west, and the hill side is covered with trees—a charming residence on a highly picturesque height, overlooking the soft and peaceful vale of the Gala.

The visitors on emerging from Torsonce policy, turned footsteps towards Bowland, four miles or so farther down the vale. The estate was reached by the old road on the north-west side of the valley without anything notable having been crossed. While the party was resting on the height above Bowland tunnel, one of the party (Mr Wilson) pointed to a peaked hill on Bow farm, on the opposite side of the valley on which is a ruin the Ordnance Survey have mapped as “Bow Castle.” The side of the hill towards the river is very craggy, almost precipitous, and has evidently been scarped in “the ice age” by a flow of ice from a south-westerly direction. The north-east side of the hill, it was explained, is a gentle slope of a mile or so towards Halkburn. The peak on which the ruin is perched, is on the very margin of the cliff. On it is a small plateau, around the margin of which has at one time been carried a wall of several feet in thickness built without any cement. This wall is approximately circular in form, and at one side has been carried down the slope for some distance, 100 yards or so of it being still traceable to where it has been cut off by cultivation. The space enclosed by this wall is about 80 feet in width, the longer axis of the oval about 120 feet. The foundations of a drystone wall five feet in thickness, can still be traced in the interior of this space, and constitute what the Survey have designated the castle. The space enclosed by this second wall is 51 by 44 feet. Certain characteristics were pointed out as evidently connecting this work with old earth works on many of the Border hills, universally admitted to be the work of Britons, though of what date still requires determination. At the same time, the Bow Castle presented many obvious differences in type when compared with these earthworks. The impossibility of accepting its erection for any modern purpose, also implied an ancient origin, but the describer could not offer any definite suggestion as to when it was built, nor for what purpose, nor by whom.

Within Bowland policies, the party was shown a small burial place, surrounded by a decaying stone wall, lying in such a sheltered hollow as a poet would like to muse in, whether in summer afterglow or in dimmer twilight, and a little trimming up, and the planting of a shrub or two and some flowers would sweeten a spot in which we understand comparatively recent interments have taken place. The party was conducted through Bowland House, which contains a large collection of Indian curiosities, notably of representatives of the Hindoo pantheon. In one of the rooms was shown the portrait of Brigadier-General Alexander Walker, who was Governor of St Helena in 1822, in succession to Sir Hudson Lowe. Sir H. Lowe was still governor when Napoleon died, 5th May, 1821. In one of the cottages on the estate, some of the party were fortunate enough to see what are said to be window-blinds, once used in the dwelling of Napoleon at St Helena. The portrait of the Rev. William Walker, minister of the parish of Collessie in Fife, hangs alongside that of his son, the General.* In the 17th century, the historian of "Selkirkshire" informs us, "Bowland belonged to the Riddells of Riddell, but was sold by Andrew Riddell of Haining in 1697, to Robert, son of John Rutherford of Edgerston. With the Rutherfurds it remained until 1752, when it was purchased by James Pringle, clerk of Session, and brother of George Pringle of Torwoodlee. His son James, who succeeded his uncle as laird of Torwoodlee, sold Bowland in 1788, to Mr Well, an Edinburgh merchant, from whom it was bought in 1808 by Brigadier-General Alexander Walker. General Walker married Barbara, daughter of Sir James Montgomery, Bart., of Stanhope, and was succeeded by his eldest son, now Sir W. S. Walker, K.C.B., Chairman of the Board of Supervision." (Mr Craig-Brown's *Hist. of the County of Selkirk*, i. p. 455).

We presume, although we have no direct authority for the statement, that the present mansion was built by General Walker, and connected with an older one still used as servants' rooms. The date on the entrance gate is 1812. The main building, which is castellated in style, of the blue native Silurian grit, with white freestone projecting porch, is very pleasantly situated on a sloping park well ornamented with trees. The botanists in the party of visitors were attracted by many large trees around the mansion—

*The General spent thirteen years of active duty in the East-India Company's service, from which he returned in 1811.

conifers, planes, etc.—and they hazarded the opinion that the larger ones might be from 160 to 200 years old.

[Sir William S. Walker has obliged me with measurements of the best of these trees.—J.H.]

NOTE OF THE GIRTH OF TREES AT BOWLAND, MEASURED 5 FT.
FROM THE GROUND.

1 Oak	-	-	-	-	8 ft. 9 ins.
1 Beech	-	-	-	-	8 ft.
1 Scots Fir	-	-	-	-	7 ft. 5 ins.
1 Plane	-	-	-	-	12 ft. 3 ins.
1 Scotch Elm	-	-	-	-	12 ft. 9 ins.
3 Silver Firs, respectively	12 ft. 11 in., 11 ft. 4 ins., and 11 ft. 3 ins.				

None of these Trees have branches at so low a height as 5 ft.

W. S. W.]

Edinburgh, 25th April, 1888.

The old flowers in the garden were diligently scrutinised, but did not offer any out-of-the-way herbaceous species. In passing out of the grounds by the entrance lodge, a semi-tamed fox, slightly over four months old, and a captive for that time, was shown by the gamekeeper. It is very shy and apparently much afraid of strangers, but when its keeper stooped down and fondled it, it looked up and licked his face in return.

The visitors returned to Stow by walking up the left bank of the Gala, a considerable portion of the way under heavy rain, which in no degree checked the flow of conversation, though it kept their feet from straying from the turnpike.

The company, on return to Stow, dined in Russell's Hotel. The salmon and viands were of the best, excellently cooked, well served; the liquors good; and, however meagre the archæological interest of the meeting may have been, all agreed that in the matter of dining, Stow would be long remembered. The company numbered 22, including the following—Mr Hardy, Oldecampus, Secretary, presiding;—Sir George Douglas of Springwood Park, Bart.; Sheriff Russell, Edinburgh; Mr Boyd of Faldonside; Mr H. Rutherford of Fairnington; Rev. R. H. Williamson, Wickham, Durham; Rev. A. H. Adamson, Felling, Durham; Mr Adamson, jun.; Capt. Macpherson, Melrose; Mr A. B. Herbert, Edinburgh; Mr Cochrane. Fernieknowe, Galashiels; Mr Romanes of Harryburn, Lauder; Mr T. Broomfield, Lauder; Rev. Mr

Martin, and Dr Skinner, Lauder; Dr Stewart Stirling, Edinburgh; Rev. Mr Workman, Stow; Mr George Muirhead, Paxton; Dr Gibb, Boon; Mr Bowie, Canonbie; Mr A. Dunlop, Ashkirk; Rev. James Allan, Mr James Wood, and Mr James Wilson, Galashiels. Mr James R. Stewart, Edinburgh, with his son and daughter, visitants at Torsonce House, accompanied the party during the day.

After dinner, the Chairman proposed as a toast "The Berwickshire Naturalists' Club;" and Mr Cochrane, "The Lady Members of the Club."

The Chairman asked nominations for membership, and two were handed to him: for the Rev. William Workman, Stow; and Dr Stewart Stirling, 6 Clifton Terrace, Edinburgh.

The Chairman handed round for inspection, a large flint spear head, the property of Mr Wood, Galashiels. No note of the finding of the weapon was submitted, and the Chairman said he thought it was of foreign origin, owing to the character of the flint from which it had been made.

The Chairman read some notes from Miss Russell of Ashiestiel, on old roads in Gala Water. They included reference to a period when there was no made road in the upper portion of the valley, and when horsewomen going to the Lothians had a curious way of knowing when to ascend Middleton Moor. When they got up as far as the foot of Heriot, they had the Gala to cross thirteen times before leaving the valley. They stuck thirteen pins in a portion of their dress, and removed one for every time they crossed the stream. When the last of the series had been thus removed from their dress, they turned to the left and ascended the moor.

Thus far Mr Wilson, but before the meeting dispersed, some objects of interest had been forwarded by Mr A. J. L. Tait of Stow, to be shown to the members. 1. A brass kail-pot, imperfect, with three feet, and ears; height $11\frac{1}{4}$ inches; breadth at middle 11 inches; breadth of top $8\frac{1}{2}$ inches. 2. A brass pottle like that from Drevalh., (Hist. of Club, vol. xi. p. 49) with the arc of the handle not so rounded; the spout with some ornament or beading at the nozzle, and annexed to the pot by an intermediate branch; height $6\frac{1}{4}$ inches; breadth at bottom 6 inches; at mouth $3\frac{1}{2}$ inches; the three feet are $2\frac{1}{4}$ inches in height. These were found twelve months previously in a park near Stow, at the back of the Old Torsonce Inn. From an advertisement in the *Edinburgh*

Evening Courant, July 16th, 1818, it appears that an "elegant and commodious Inn was then building, (to be partly ready in autumn) on the Mill Lands of Torsonce," in connection with "the new line of road on Gala water."

The churchyard at Stow is in good order. Of the principal tombstones, one is to General Walker of Bowland, which bears only his coat of arms. This monument was erected by the East India Company, in whose service the General had spent the best years of his active life; but the slabs of marble with the inscriptions were lost at sea on their passage to this country. I find it is believed in the vicinity that General Walker was governor at St Helena when Napoleon was a prisoner there; but this is a mistake. In autumn 1822, several months after the Emperor's death, he left this country for London, preparatory for his embarkation for St Helena, from which he returned in the summer of 1828, a good deal shattered in health. On the 5th of March, 1831, he died in the 67th year of his age, after two days illness. (New Stat. Acc. of Edinburghshire, p. 415).

Behind the church is a granite monument to Mrs Inglis of Torsonce and her second son. The letters are worn out, good sandstone being in this respect more durable than granite. There is a third to the memory of the Taites of Pirn, etc., which is a useful family document. It has been copied.

As regards the blackened edifice, called the "Station" and the "Bishop's Palace," the oldest, except the old church, in the village, it is not necessary to discuss its history, or rather want of history; sufficient is it to say, that its present condition is reported to be owing to its having been burned down by a tailor, one of its latest occupants, who accidentally set fire to it when in search of his thimble.

The old pewter-plate for church collections has an inscription: "FOR THE CHURCH OF STOW, 1724; and on the back "THOMAS INGLIS." The stamp is a thistle encircling a rose.

The inscription on the chapel at St Mary's Well at Torsonce, is in modern letters, now nearly effaced. It is a theory—only a theory—that the original church of Wedale was located here; but if so why call it Torsonce? The site of the old tower of Torsonce stands among trees on an eminence facing the house. Might it not be the large dovecot of which people speak? The walls, wherever it stood, were said to be six feet thick, and it had an underground vault. Be this as it may, the present mansion

occupies the position of the keep of the old structure. It faces the south, and is constructed of very red bricks, dyed the people say in blood, an audacious modern myth. Its previous owner, Henry Inglis, was a man of great energy, an excellent public speaker, a minor poet of some note, a prominent freemason. He was involved in the Glasgow Bank disaster, and as Chairman of the Directors, was punished along with others. After being liberated from prison, he went to London, and stayed there some years before his death, which happened some years ago. The estate was bought in 1879, by Mr John Milroy, Assoc. Inst. C.E., F.R.S.E., who made many changes by building, roadmaking, and planting. He was a successful constructor of railways, canals, and harbours, and inventor of the "Milroy Excavator." He died in 1886 or 7, aged 80 years. (Proc. of Royal Soc. of Edinburgh, Vol. xiv., Obituary Notices, pp. 167-9). There were fine tufts of *Asplenium Ruta-muraria* on the garden walls. This little fern is said to be not rare in the Galashiels district.

The ground being nearly all under cultivation, very few wild plants worthy of notice were picked up. Except above Fernieherst and a few other heights, the native heather has been nearly swept from the hill-sides, and replaced by agricultural crops and grasses. *Galeopsis versicolor* occurs in several of the fields. Bilberry grows, but does not fruit, in the dry Torsonce woods. The hill-top at Bow-castle is full of *Viola lutea*. A wild Roe-deer, we heard, had once been shot at Bowland. The slate rocks in this vicinity are of the Llandovery series, and are fossiliferous. See Mr James Wilson's valuable paper in Mr Craig-Brown's "History of the County of Selkirkshire," vol. i. p. 256, etc.

One or two of the members visited Windydoors, a place always to be held in remembrance by youthful students of history, as the birth-place of Dr William Russell, author of the "History of Modern Europe," and other publications. (Born 1741—Died 1793). The object of the present visit, was a stone at the castle. This stronghold is now utilised in the present farm-offices. "It was so strongly built," says Mr Sanderson, "that the masons when erecting the present farm buildings, found it so hard work taking down the walls, that they were allowed to remain."

During a visit to the neighbourhood before the meeting, Mr Thomson, engineer, gave me a few of the popular traditions that still linger in the district about old times and places. There are the remains of a castle on Lugate or Lowgate water an affluent

of the Gala, of which only a part is left built into one of the out-houses of the farm steading. Habituated to the use of arms, the old lairds hereabouts had a ready means of settling their disputes. To this purport a story is told of two lairds of Torsonce and Lugate Castles. They quarrelled and fought together on horse-back at Lugate. Torsonce prevailed and Lugate fled, but was so hotly pursued that he could not gain admittance to his own fortress, but passed it, and Torsonce slew him at a thorn-tree above Lugate Castle. The "Rabble Road" connecting Stow with the Edinburgh road, was so called because a rabble once broke out in Stow, and those found guilty were as a reparation obliged to construct this road. It is now called the "Rammel Road." There is perhaps here a play upon words; but it shows that the people till recent times were in want of commodious public roads; and in their conversation with strangers they are still anxious to point out the old ways.

Above Killochgett, the suburb of Stow, looking up from the Edinburgh road, on the right hand going northwards, is a road leading up to a hill-top under culture. There are at the summit traces of a British camp, and opposite to it, on the high steep stretching upwards, like a mountain side, is another similar camp on a level with this. The people believe that the warriors who garrisoned these were so strong, although a broad valley intervenes, that they could shoot arrows from the one camp into the other.

Miss Dunlop, in an article in the *Scotsman*, signed "Old Edinburgh," says: "In 1770, the cordiners of Edinburgh were in the habit of selling their shoes at Stow fair. Stow was then regarded as the first-meeting place between the capital and the Borders. The size and importance of its market is evinced by the fact that the head tailor in Selkirk, at the beginning of the present century, held it to be his duty in his patrons' interest to go to Stow Fair annually to get the fashions." Two fairs were established at Stow in 1669, each for two days, the first to begin on the 1st July, and the other on the 20th September. (*Hist. of Selkirkshire*, i. p. 452). "In 1778, Robert Boyd commenced making woollen cloth, the only manufacture before that period being 'Stow Struntain' made of the coarsest wool, and wrought by a woman on a loom like a bed-heck. For working 144 yards a woman got 6d with meat, 9d without. It was used for garters or bindings, and fetched from 9s to 11s per gross." (*Ibid*).

Mr Craig-Brown (*l.c.*) questions if, when in 1699, James Borthwick, proprietor of the town and lands of Stow, was authorised by Act of Parliament to have a market cross, a weekly market on Friday, and two annual fairs; it was at that period that it attained burgh rank, "and acquired the ponderous wig that was used at the admission of her burgesses. The hat had a brim nearly a foot broad, and is said to have found its way to Abbotsford, minus one or two pieces cut out for soles by the last made burgess, Andrew Henderson."

Mr Robert Sanderson, Stow, says in a letter: "I do not know of any house that was occupied by the Bailie of Stow. This functionary, as far as I can gather, visited Stow at stated periods, and held 'Commissary Courts.' A hat and wig said to have been worn by the Bailie, were said to have been seen and handled by residents still living in Stow."

I will conclude the account of this meeting with a List of the Fungi found in the neighbourhood of Stow, by the Rev. J. M. Robertson, with extracts from his accompanying letter.

<i>Agaricus vaginatus.</i>	<i>Agaricus stylobates.</i>
" <i>muscarius.</i>	" <i>umbelliferus.</i>
" <i>rubescens.</i>	" <i>parvulus.</i>
" <i>asper.</i>	" <i>squarrosus.</i>
" <i>clypeolarius?</i>	" <i>rimosus?</i>
" <i>granulosus.</i>	" <i>arvensis.</i>
" <i>melleus.</i>	" <i>campestris.</i>
" <i>rutilans.</i>	" <i>sylvaticus.</i>
" <i>columbetta.</i>	" <i>æruginosus.</i>
" <i>imbricatus.</i>	" <i>fascicularis.</i>
" <i>terreus.</i>	" <i>æreolatus.</i>
" <i>acerbus.</i>	<i>Coprinus comatus.</i>
" <i>candicans.</i>	" <i>atramentarius.</i>
" <i>fusipes.</i>	" <i>fuscescens.</i>
" <i>equestris.</i>	" <i>micaceus.</i>
" <i>nebularis.</i>	" <i>deliquescent.</i>
" <i>laccatus.</i>	" <i>plicatilis.</i>
" <i>maximus.</i>	<i>Bolbitius apicalis.</i>
" <i>geotrupus.</i>	<i>Cortinarius caperatus.</i>
" <i>infundibuliformis.</i>	" <i>cœrulescens.</i>
" <i>butyraceus.</i>	<i>Paxillus involutus.</i>
" <i>imbricatus.</i>	<i>Hygrophorus pratensis.</i>
" <i>conissus?</i>	" <i>niveus.</i>
" <i>plexipes.</i>	" <i>coccineus.</i>
" <i>laceratus.</i>	" <i>puniceus.</i>
" <i>alkalinus.</i>	" <i>conicus.</i>
	" <i>psittacinus.</i>

<i>Lactarius torminosus.</i>	<i>Boletus flavus.</i>
„ <i>piperatus.</i>	„ <i>variegatus</i> ?
„ <i>blennius.</i>	„ <i>chrysenteron.</i>
„ <i>zonarius</i> ?	„ <i>cyanescens.</i>
„ <i>vellerens.</i>	„ <i>calopus.</i>
„ <i>deliciosus.</i>	„ <i>edulis.</i>
<i>Russula nigricans.</i>	„ <i>luridus.</i>
„ <i>lutea.</i>	<i>Helvella crispa.</i>
„ <i>furcata.</i>	<i>Sparasus crispa.</i>
„ <i>rosacea.</i>	<i>Spathularia flavida.</i>
„ <i>heterophylla.</i>	<i>Clavaria rugosa.</i>
„ <i>foetens.</i>	„ <i>abietina.</i>
<i>Cantharellus cibarius.</i>	<i>Peziza acetabulum.</i>
„ <i>aurantiacus.</i>	„ <i>macropus.</i>
<i>Marasmius oreades.</i>	„ <i>scutellata.</i>
„ <i>peronatus.</i>	<i>Torrubia entomorrhiza.</i>
	etc. etc.

Podisoma Juniperi was quite common on almost all the junipers about Stow, and as a natural consequence the *Roestelia lacerata*—another condition of the same fungus—infested the hawthorn trees. The *Lactarius deliciosus* was very abundant in certain seasons, but varied much in different years. *Cantharellus cibarius* haunted several definite localities in Torsonce wood, and, curiously enough, I found that when it was scarce, *Cantharellus aurantiacus* (non-edible) was abundant. *Boletus edulis* was not rare in Torsonce plantations, and many a nice dish have I made of it, sliced and fried. *Hydnum imbricatum*, *Lycoperdon giganteum*, and *Helvella crispa* were among the other esculent fungi I gathered and enjoyed—the first a somewhat tough morsel, but as much as you liked of it for the gathering and drying. Besides the common mushroom (*Ag. arvensis*), the kindred *A. campestris* and *A. sylvaticus*, are also to be got in Stow and neighbourhood. So much for some edible fungi—but the whole fungal tribe, (with the exception of the *Acidiacei* and allied orders) seem to affect the district, and their profusion and variety offer no small compensation for the absence of anything notable in the ordinary Flora.

Cryptogramma crispa (Parsley fern), has a well-known locality on Craig-end hill, among the loose stones there. *Galeopsis versicolor* I am familiar with, but the general poverty of the district is plainly proved by *A. rutamuraria* being hailed as a good find.

As to the antiquities: on the height above Plenloth farm—near Fountain-hall—there is a well preserved British fort, and cists with ashes and calcined bones, if I remember rightly, have been turned up now and then. The Antiquaries' Society of Edinburgh visited the place some years ago. Mr Garvie, late farmer in Plenloth, had collected quite a number of celts, etc., (neolithic) on the hill. He told me also that on the other side of the valley he had seen marks of vitrification, but as I was just then leaving for Edinburgh I was unable to verify his statement. There are still to be seen on the hillside beyond Weatherstone, two rings or Pictish remains—called by the people Roman camps.

The castles at Windydoors, Lugate Water, and Muirhouse, I know nothing about, further than that they have the same apparent character as other Border keeps. A chalybeate spring exists beside 'Lugate castle;' marked on the Ordnance Survey Map. The surface water is strongly tinged by carbonate of iron.

As regards churches and church buildings, I believe that the disused Parish Church was—in its original form—the church dedicated to the Virgin, endowed with a portion of the true cross by Arthur, (hence the medieval sanctuary of Wedale), and in which Clement, Bishop of Dunblane was consecrated in 1233 (v. Spottiswoode's list of Bishops in Vol. I. of his History, p. 214). My reasons for so thinking are (1.) the insufficient size of the so-called chapel at Torsonce, quite inadequate to the consecration of a Bishop, or the renown of the Stow of Wedale. (2.) The evident antiquity of the lower portion of the walls of the old Parish Church. The style of building, masons' marks on each squared stone, and massive character of the foundation appear to be quite medieval. (3.) The extreme reverence in which it must have been held in the middle age. A perfect layer of human remains was dug up under the floor, and was specially deep and thick at the east end, near the altar. The sepulture of so many generations indicates—does it not?—the sanctity of the spot. I am not aware of any remains ever having been found at Torsonce chapel, and although the Mary Well is there, that does not imply the previous existence of more than itself, dedicated to the Patron saint of the place. I know that many local antiquaries hold that the ancient church and sanctuary were at Torsonce. I am inclined to think otherwise. The Stow of Wedale, town, sanctuary, church and hall, have always been in my opinion, just where they are still.

The Bishop's station or whatever else it may be termed, was once the residence of a Mr Borthwick, who acted as Baron Bailie in Stow. He was a cadet of the house of Borthwick of Crookston. My information on this point is derived from the present proprietor of Crookston, who spoke quite positively on the point and must have means of knowing about it. That Baron Bailie is styled "my Lord Borthwick" in the K. Session Records. Another version of its history, or rather a modification of the above backed up I believe by the K. S. Records, is to this effect that the building was once the manse, but having become ruinous, the heritors gave to the minister instead the residence of "Lord Borthwick" with his consent, which residence of his now constitutes the manse. From the extreme age of the manse, as evidenced by the thick walls, I should think this a likely story. As to the wretchedly planned and constructed old "biggin" ever having served as a residence of the Archbishop of St Andrews, whose retinue would have occupied half the present village, the idea is absurd, and could only have originated in the ignorant fancy of somebody wishing to magnify the ruin and make it honourable.

A curious chapter in the history of agrarian law in our country might be read out of the old Stow Common. Unlike their neighbours of Lauder, the inhabitants of the metropolis of Wedale had no charter to assure them

of their rights; only immemorial usage. So the Common came to be divided among the individual proprietors, whose estates lay contiguous to it, and the only man who now enjoys an acre of it, as common, is the minister. The upper glebe of the minister of Stow is part of the former Stow Common.

The names of some of the farms and properties about Stow are ancient, and have their analogies in many other parts of the country. There are at least a score of Stows in England. Stow is Stock, *i.e.* a palisaded or enclosed place (*v.* Rogers on Names). An interesting old farm—once a separate property is Hoppringle. The laird was Hoppringle, of Hoppringle, I imagine the head of the sept Pringle, whose surname is so common in Galawater and on Tweedside. Pringle of Torsonce was King's banner bearer, according to Scott. Then you have Torquhan, Torsonce, etc., with which compare Tortrex, Torwood, etc., in Stirlingshire; a county also of medieval and pre-historic fame. Plenploth and Plean are evidently from the same root. Above Stow, some 400 or 500 feet higher stands a very old steading named Crunzie, (pronounced Cruize or Cringy). In this parish I have a similar place, situated at a considerable altitude, named Cringit.

RULE WATER, JEDBURGH, WEENS, BONCHESTER BRIDGE, WELLS, BEDRULE, THE DUNION.

THE fifth meeting was held at Jedburgh for Rule Water on Wednesday, September 14th. Owing to the excessive fall of rain, and not being acquainted with most of the route, I have very few personal remarks to make in the early part of the journey. The difficulty of reporting on the appearance of a country from under the shade of umbrellas and enveloped in wet mist will be easily understood. For that day at least the local weather rhyme might have been stereotyped:

“When Ruberslaw puts on his cowl,
The Dunion on his hood,
Then a' the wives o' Teviotdale
Ken there will be a flood.”

To avoid such a calamity, the September meeting had been fixed thus early; but I am told that in this month, a fixed meeting in the hill-country of Roxburghshire is never safe from blasts descending from the southern Fells. For the advantage of the Club, I give the report of Mr James Watson, who knows the country well; supplementing it with my own and others' remarks.

There was a large turn-out of members, notwithstanding the unfavourable state of the weather. After breakfasting in the

Royal Hotel, a visit was paid to the Abbey, where some time was spent in inspecting the various architectural features of one of the most interesting ecclesiastical ruins in Scotland. Attention was called to several historical tombstones in the Abbey churchyard, including one recently erected in memory of the "Beauteous Rosebud" of Burns. The party thereafter drove up Jed Water, passing on their way the well-known Huttonian Section in front of Allars Mill, which shows the junction of the Greywacke or Lower Silurian rocks and the Old Red Sandstone; Inchbonny, the former home of James Veitch, the self-taught philosopher; the Sandstone Scaurs, alluded to by Ruskin in his "Modern Painters;" the Capon Tree, mentioned in Gilpin's "Forest Scenery;" Hundalee Cave, which for many years was believed to have been destroyed by a landslip, but was reopened recently; and Lintalee, where there is an interesting camp formed by the Good Sir James Douglas previous to the battle of Lintalee. On reaching Blackburn, nearly opposite Fernihurst Castle, the early home of the Kerrs, where there are some large Lime trees of remarkable growth, the party took to the right towards Swinnie Moor, which formed part of the grant by King Robert the Bruce to the Good Sir James Douglas for his distinguished service.

On leaving the Jedwater road, and before reaching Swinnie, we had on our left the fine policy of Langlee with Langlee House, the residence of Mr Charles Scott. In a field a little to the west of the present farm-house of Swinnie, there was formerly a peel, which is said to have been held by a family of Olivers, who, like many other families hereabouts, were vassals of the Douglasses. Some sixty years ago a man named Middlemist, while ploughing in this field, turned up a box which was found to contain about 700 silver coins. These were claimed by the Crown authorities as treasure-trove. Numerous other coins were afterwards found about the same place near to the site of the old peel.

After leaving Swinnie moor, from which a view of the Dunion was obtained on the right, the drive was through the farms of Easter and Wester Fodderlie and Gatehouse-cot. The rain which had been falling for some time began to fall heavier, and this made a change in the programme necessary. Instead of going to Abbotrude as was intended, to examine the ruins of the Old Church and the burying-ground, and to Bonchester hill, where there are many old camps, they drove direct to Weens, where

they were kindly entertained by the proprietor, Mr Tancred. In a tastefully fitted-up hall numerous interesting articles were inspected by the members. These included some old regimental colours, pieces of old armour, swords, and other things from Waterloo, Inkerman, and other battle-fields; Indian curiosities, weapons, dresses, vessels, etc.; an ancient spur found on the farm of Langraw; some very sweetly-toned Burmese bells; cases of rare beetles, moths, etc. [The small brass spur for a lady, was very curious, more particularly in the loops for the chains or straps to fasten to the boot. A drawing has been taken from it. Mr Tancred has acquired Mr Maidment's collection of pamphlets and newspaper cuttings relating to Berwickshire and Roxburghshire, a most valuable acquisition for a county historian.] After these had been duly examined, Mr Tancred entertained the party to luncheon. This over, and the rain having ceased to fall, adjournment was made to the gardens, where an old font—or piscina, as some of the members thought—was pointed out. The workmanship of this stone showed that it belonged to the early Norman period, probably of twelfth century date. It belonged to the old church of Hobkirk. One member thought it could not be a font, as he knew of no font with a hole for letting off the water, as this had. Another thought it could not be a piscina, as piscinæ were invariably fixed in niches in the wall, and this one had never been so placed. It is moulded on all sides, and has a base supporting it from the ground. Many of the trees—especially the larches—were greatly admired for their great height and symmetry of their stems. One of these is known as the “Family Tree,” the initials of the names of all Mr Tancred's family being cut in the bark. Another is known as the “Sheriff's Tree,” it having been planted when the late Sheriff Rutherford of Edgerston was born.

[While this was occupying several of the party, I, as well as others, went to Bonchester village and bridge (both called Bonchester Bridge), where there are a double row of houses, shops, etc. On the left at the head of a grassy green haugh stood Greenrivers, a bright and clean-looking square house. At the Bridge angling was engaged in in the turbid waters of the Rule, now increased by the rain; the wooded banks rising above the red sandstone of the river border. Langraw and Hobkirk or Hopekirk lie a little farther up. The great white hill of Bonchester rose above, with a wall crossing the middle part of it. It was too late to

think of attempting to ascend it now. Mr Tancred in writing of it says: "On the top you can distinctly trace the outlines of an old encampment partly on my side, but mostly on Abbotrule. There is also a smaller encampment, lower down and more sheltered, probably a winter residence of those who guarded the hill." Mr Tancred's cottages were of recent erection and well kept. The mansion house at Weens is old but stately, with a fine park studded with full-foliaged trees in front. Several of the trees surrounding the policies are of considerable age, and of great height and ample dimensions; among these are some early planted larches. Mr Tancred writes me: "I have measured the size of a good big larch, planted about the year 1770, and by your directions the measurements are at 1 foot from the ground, 11 ft. 10 ins.; at 3 feet, 9 ft. 9 ins.; and at 5 feet above the ground, 9 ft. 2 ins. I have no means of measuring the height, which I am sorry for, as the altitude of this tree is worthy of note. I also send you the size of a very old cherry tree (Gean) taken in the same way as the larch. These trees I have been told are the oldest on the property: four feet from the ground or four and a half, I believe, 8 ft. 1½ in.; another 7 ft. 7 ins., and there are several more about the same size." I did not see the supposed piscina, nor the garden. Mr Walter Deans, Hopekirk, who had gone to the top of Bonchester Hill to act as guide, and fortunately found shelter behind a wall, has since the meeting communicated much information about the neighbourhood, from which I shall make selections to form a paper. He has an intimate knowledge of the country-side, its traditions and history.

After leaving Weens, the drive was past Toun o' Rule, Hallrule, Billerwell, and through Wells' policies to Bedrule. Birch woods fringed the river banks, and occasionally ascended into the pasture grounds above. The ruins of Fulton Tower were seen in a lonely position on the far-side at some distance. The measurements of it, as taken afterwards were in length 31 feet; in breadth, 27 feet; height 16 feet; thickness of the wall, 4 feet. It is the only peel-tower left of a great number that once guarded the vale of Rule—strongholds of the Clan Turnbull. The ground beyond it appeared to be waste and boggy, rising on the east to Bedrule Hill, 708 feet, and still higher up to Black Law, 1100 feet. The drive led through partly cultivated, partly boggy ground at the base of Ruberslaw. I have seldom seen more of *Scabiosa succisa* in bloom, than was here in the moist pastures.

A Heath-cock and hen rose from the young plantations, which were partly mixed with native birch seedlings. Ruberslaw presented an imposing front in this aspect. First, there was a short lower ridge, where a small plantation, pushed the tops of its trees over the shoulder from behind the ridge; then came the blue rain-wetted pillar-like rocks; and then the summit curiously ridged and furrowed; and finally the long heathery moor up to it.*

The vale of Rule was now mostly filled up with wood; the numerous Hawthorns being loaded with fruit. There were fewer Mountain-ashes than I expected. Here we had glimpses of Leyden's

"Red ezlar banks, that frightful scowl,
Fringed with grey hazel."

Wells' policies (Sir William F. A. Elliott, Bart.) were greatly admired for the many fine trees, Ash, Oak, Sycamore, and Larch; some of them being among the oldest planted trees in Roxburghshire. I have been favoured with the following return of the best of the trees at Wells, from Mr Kennedy, the forester.

"The woodlands are interesting, and among them may be found numerous fine specimen trees. In the immediate neighbourhood of the mansion-house, there are large numbers of oaks, ashes, beeches, and larch, which give quite a character to the woods. Among those worthy of mention are the following: Oak No. 1.—Standing alone on the lawn to the left of the mansion-house, one of the most perfect oaks which a forester could desire to see. This oak is 80 ft. high, with a clean bole 30 ft. circumference at one foot from ground, 18 ft. 4 in. at five ft.; up 14 ft. so equally grown that it girths perhaps as much at 25 ft. from ground as at five. Oak No. 2.—Stands close to the stables, but is very much shaded by other trees; it is 85 ft. high, bole 36 ft. very equally grown, circumference one foot from ground 19 ft. at five up 15 ft. Oak No. 3.—Circumference one foot from ground 17 ft. 8 in. circumference, five ft. up 13 ft. 6 in., height of bole, 40 ft., height of tree 85 ft. Larch No. 1.—Circumference one foot from ground 12 ft. 7 in., five ft. up 9 ft. 6 in., clean bole 70 ft., height 100 ft.

* As I may not have another opportunity, and as a memorandum to our successors in investigation, I may here mention, that Messrs A. Jerdon and W. B. Boyd found among crevices of the rocks on the summit of Ruberslaw, the rare moss, *Edipodium Griffithianum*, which I have already recorded (Club's Hist. v. p. 465) from the Bizzle and Henhole on Cheviot. On one visit, before 1867, I found an example of a very rare and unrecorded alpine lichen, *Parmelia ambigua*, Ach., on the stem of one of the dwarf Scots pines that encircle the neck of the hill, facing to Cavers. I sought for it in vain on a second visit many years afterwards. On the same occasion I broke off from a sandstone at the base of a wall lower down, but on the same side of the hill, what I took for *Lecidea lucida*, Ach.

Larch No. 2.—Circumference one foot up 12 ft., five up 9 ft. 2 in., clean bole 60 ft., height 95 ft. Larch No. 3.—Circumference one foot up, 11 ft. 5 in., five ft. up, 8 ft. 7 in., clean bole 65 ft., height 100 ft. Scots Fir.—Circumference five ft. from ground, 12 ft., height 65 ft.”

Measurements of some of the Wells’ trees are given at p. 381, B.N.C. Vol. IX.; apparently a different series.—J. H.]

Shortly afterwards Bedrule was reached, where the party were again hospitably refreshed by Mr George Simson, and some paintings by Miss Simson were much admired. The view from the window of the drawing-room was magnificent. In the foreground was the finely wooded valley of the Rule, while in the background “dark Ruberslaw” was seen to great advantage. Bedrule is a place of much historic interest. In the 12th century it was owned by Lady Bethoe, who not only gave her name to the parish—Bethocrule being the old name—but gave birth to a long line of heroes and heroines, to Randolph, who supported the Bruce and led the left wing of the Scottish Army at Bannockburn, and to Black Agnes, who defended the castle of Dunbar. It afterwards passed into the hands of the Cumyns, and on its being forfeited by their treason, the territory was given by the Bruce to the Good Sir James Douglas till 1389. Next century it was the property of the Turnbulls, who for two centuries were among the most noted freebooters in the Borders. In 1510 the king—James IV.—marched to Rule with an army to execute summary justice on them. He was met by two hundred of the clan, each having a halter round his neck and a naked sword in his hand. Some were capitally punished, others imprisoned, and others dismissed on giving hostages for their good behaviour. “Auld Badrule” was present at the Raid of the Redeswire in 1575 “wi’ a’ the Turnbulls at his back,” and gave a good account of himself and his clan. From this clan was descended William Turnbull, Bishop of Glasgow, who was Privy Councillor and Keeper of the Privy Seal, and was also founder of the College of Glasgow. It is said that the Turnbulls were descended from a family of the name of Roule or Rule, and it is believed that William of Rule, who witnessed a charter to the monks of Kelso, was the first who bore the surname of Turnbull, which he gained on account of having saved the life of King Robert the Bruce from an attack of a wild bull while hunting in the forest of Callander. The poet Leyden, in his “Scenes of Infancy,” makes reference to this incident. The site of the old castle at Bedrule was pointed out, but nothing of it now remains. In 1545, the English burned

twelve castles and forts in the district of the Rule. The name Rule, according to Chalmers in his "Caledonia," is merely the British Rhull, meaning that which moves briskly, or breaks out, descriptive of a mountain torrent.

Here the excerpts from Mr Watson's contribution terminates. Too late for reaching the meeting, I was favoured with some geological guide notes sent by Professor Geikie, which I preserve here for future use.

"Near Bairnkin, there is a small stream which has cut its way down through the Red Sandstones to the Silurians—the unconformable junction being well seen in the glen. In Swinnie Moor you have the Old Red Sandstone. Bonchester Hill is capped with a sheet of Dolerite; and down in the valley of the Rule (near the Mill, if I remember rightly), you will see a dyke of Dolerite which crosses the stream. The Rule flows through the Red Sandstones all the way from that point down to below Bedrule. Rubers-law is the root or neck of an old volcano. The highest portions of this hill consist of Basalt rock (Dolerite) and Volcanic tuff—the materials which fill up the old orifice or funnel. The Dunion is another volcanic neck, and associated with it are Volcanic-tuff (ashes) and sheets of Dolerite. Various smaller volcanic foci are dotted about the hill-slopes above Bedrule—but they do not make any surface-feature. You will not see them—unless you hunt carefully all the drains and ditches!"

A magnificent view awaited us on the Dunion road, like a sudden revelation of new lands to adventurous mariners; gradually revealing itself more and more in shadow and light, as the lingering mists were dispelled by the increasing power of the sun-beams. In the south were Carter and Peel Fells, Windburgh and one of "The Paps," and a hill next it, shaped like Skelf-hill. Then passing on by the Moffat hills above Loch Skene, in a land of darkness, the eye caught the blue range at the head of Douglas Water, and singled out the Bowhill heights. Nearer were the triple Eildons, so near that we could trace their every feature, and then the low ground, with lesser elevations, away by Kelso. The Browndean Laws among the head tributaries of the Oxnam and Kale were very distinct, although the shadows were on them. Nearer were Minto hills, and woods, its grey Craigs crowned by the Observatory, and the woods of Chesters, Ancrum, and Monteviot. Ruberslaw became almost beatified backed by a silvery sky—the local "Cynosure" and "star of Arcady" of that romantic land. All felt transported with that glorious evening scene in this, the richest section, of "pleasant Teviotdale."

Beneath us stood Menslaws, Newton, and Rewcastle. Kersfield,

now obsolete, on our left, Mr Walter Laidlaw spoke of, as the birthplace of George Noble, who wrote the verses inscribed on the Wallace Urn at Dryburgh, sometimes (as in Sir David Erskine's "Annals and Antiquities of Dryburgh," p. 119), attributed to the Earl of Buchan, his patron. In a field on the right near a stone wall running up to the Dunion, a fine large British Urn was ploughed up two years ago, which is now preserved in the Marquis of Lothian's museum at Monteviot. Having passed Larkhall, as we descended by the back of Glenburnhall, and visible also in the morning near Lintalee, there were glimpses of a rich native Rosaceous flora, in the red hips of the Dog Roses, and the lowlier *Rosa mollissima*; in the trailing Brambles; and the profusion of Raspberries in the fir-woods.

Jedburgh was reached about half-past four o'clock. Dinner was in the Royal Hotel, at which the Rev. Mr Paul, Roxburgh, the President, presided; and Mr J. Cumming, banker, Jedburgh, acted as croupier. Amongst the others present at the dinner were:—Sheriff Jameson, Rev. Dr Farquharson, Selkirk; Mr James Hardy, Oldeambus, Secretary of the Club; Mr Rutherford of Fairnington; Capt. Macpherson, Melrose; Dr E. Johnson, Kelso; Rev. George Gunn, Stitchel; Mr J. Turnbull, Selkirk; Mr J. Watson, Jedburgh; Rev. J. A. Crozier, Newry; Mr Adam Cochrane, jun., Galashiels; Mr T. Smail, Jedburgh; Mr A. Bowie, Canonbie; Mr J. Thomson, Shawdon; Mr Middleton H. Dand, Hauxley, Northumberland; Mr W. Thomson, writer, Jedburgh; Mr James Wood, Galashiels; Rev. John Walker, Whalton Rectory, Northumberland; Mr Wm. Elliot, Sheriff-Clerk of Roxburghshire; Rev. Dr G. W. Sprott, North Berwick; Rev. Dr W. Snodgrass, Canonbie; Mr J. J. Vernon, F.S.A., Hawick; Mr J. W. Kennedy, Hawick; Mr F. Elliot Rutherford, Hawick; Mr W. Guthrie, Hawick; Mr Michael Muir, Selkirk; Mr Walter Laidlaw, Jedburgh; and Mr Andrew Waugh, Hawick. Other participators in the days proceedings who were obliged to leave early were:—Mr Peter Loney, Marchmont; Mr Charles Watson, Duns; Mr David Leitch, Greenlaw; Mr A. H. Evans, Cambridge University; Dr Shirra Gibb and Mr A. G. Spence, Boon; Mr C. B. Bosanquet and Mr R. C. Bosanquet, Rock; T. Craig-Brown, Selkirk; Mr Craig, Edinburgh; Mr Wm. Currie, Linthill; and Mr J. S. Mack, Coveyheugh. After dinner, the Secretary read a paper by Mr Walter Laidlaw, Jedburgh, on the recent discoveries of Roman remains at Cappuck, on the Oxnam

Water. The cast of a stone found the previous week at that place was shown. There was on it a considerable amount of carving, including the representation of a Boar, the symbol of the 20th Roman Legion, which has also been found at Newstead, and a bird which may be a Raven. The stone when found was not nearly entire, and there were indications that the part that is wanting had borne an inscription. A plan of the portion of the Station already laid bare, drawn and measured by Mr Andrew Currie, Darnick, was also handed round. Three new members were proposed, namely:—Mr Thomas Simson, Commercial Bank, Jedburgh; Mr F. E. Rutherford, Hawick; and Mr Louis Stevenson, Mount Ulston. The meeting broke up at half-past six o'clock, just in time for the members to leave with the last train.

BERWICK.

THE last meeting for the year, was held at Berwick on Wednesday the 13th Oct. The day opened favourably, with a hard frost, but terminated in a heavy downfall of rain. There was a good attendance. After visiting Mrs Barwell Carter's house (the late Dr Johnston's), and viewing the memorials of the Club's early days carefully preserved there, a large party accompanied Mr Scott, rector of the Corporation Academy, for a perambulation of the Walls of Berwick, in order to have the towers and fortifications pointed out, beginning at the site of the "Percy Tower," near the Railway Station, and proceeding to the Bell Tower (of which a part has been restored, and still remains), then to the "Murderer" Tower overlooking the Magdalen Fields, and the Red Tower, and concluding, as time pressed, at the Cowgate leaving a survey of the remainder for another opportunity.

The company assembled at the Museum at 1 p.m., under the chairmanship of the President (Rev. David Paul, Roxburgh), who delivered an excellent address on "The Study of the Fungi." At the conclusion of the address, several illustrations of fungi, done by Mrs Paul, were handed round, and were greatly admired. Captain Norman then moved a vote of thanks to Mr Paul for his address, which he hoped would stimulate the younger members, of the Club to embark on the study which had formed the subject of the paper.

The reports of the monthly meetings were read by the Secretary. The accounts were audited, and the Treasurer reported that the

means taken to recover arrears and ensure prompt payment of subscriptions had been so far successful, that the balance for this year was on the right side. After removing defaulters, the diminution of the membership was found to be insignificant, owing to the steady annual influx of candidates. The present numbers were 354. The subscription for next year was fixed at eight shillings.

The following new members were admitted:—1. Right Hon. Edward Marjoribanks, M.P., Ninewells House; 2. Robert Cecil Hedley, Cheviott House, Corbridge-on-Tyne; 3. Rev. P. B. Gunn, Oxnam; 4. George Fortune, Duns; 5. Rev. Macduff Simpson. Edrom; 6. Edward Thew, Birling House, Warkworth; 7. Benjamin Morton, agent for the Trinity Board; 8. Rev. William Workman, Stow; 9. Dr Stewart Stirling, 6 Clifton Terrace, Edinburgh; 10. F. Elliot Rutherford, 81 High Street, Hawick; 11. Louis Stevenson, Mount Ulston, Jedburgh; 12. Thomas Simson, Commercial Bank, Jedburgh; 13. Ralph Carr Bosanquet, Rock Hall, Rennington; 14. James Joicey, Esq., M.P., Longhirst, Morpeth; 15. Rev. William C. Callander, Ladhope, Galashiels; 16. Thomas Robertson Thompson, Alnwick; 17. Col. Ralph Ellison Carr, Dunston Hill, Co. Durham; 18. Rev. J. S. Pickles, Vicarage, Wooler. Mrs Muirhead, Paxton, was admitted as an honorary member.

The Chairman said that as their retiring president, it was his privilege to nominate his successor. He, therefore, begged to propose Mr Cadogan of Brenckburn, a gentleman who he was sure would prove a very acceptable president. (Applause.) Mr Cadogan was an antiquarian, and also something of a botanist, and when they visited Brenckburn in the spring they saw indications of his taste in horticulture. (Applause.) If they elected Mr Cadogan to the presidency—as he (the speaker) anticipated they would do—he was sure that Mr Cadogan would fully maintain the reputation of the club. (Hear, hear, and applause.)

Mr Cadogan thanked them most sincerely for the great honour. After the address of the retiring-president that day, he feared that it would indeed be very difficult to tread in his steps. However, he would do his very best to merit their approval, though they need not expect much from him. He hoped, at least, that he would be able to arrive at mediocrity.

The following as afterwards modified, were appointed as places of meeting for 1888:—1, Edlingham and Glanton; 2, Kirknewton

for Colledge Water, and Coupland Castle; 3, Jedburgh for Minto, Ancrum, Monteviot, etc.; 4, Holy Island; 5, Canonbie; 6, Berwick.

Some boards of spruce-fir sawn out of timber from the woods at Hunthill, Jedburgh, and much perforated by the larvæ of a large Saw-Fly (*Sirex Gigas*), were sent by Mr James Cumming, Jedburgh. This Saw-Fly is on the increase, and the perfect insect this year has been seen in several of the Berwickshire plantations, as well as houses; and also in North Northumberland. Mr Cadogan stated that he had seen them at work in his woods on the Coquet.

The present season has also been characterised entomologically by the prevalence of large and small White Butterflies, whose caterpillars committed extensive depredations on the cabbage gardens, and on Swedish turnips in the fields. The foliage of Swedes has also been loaded with colonies of *Aphis Brassicae*, which however, the rains washed off. The quiescent stage of the Hessian Midge (*Cecidomyia destructor*), has been detected in small numbers, without perceptible damage, chiefly in barley fields at Dunglass, Chapelhill, Linnhead, and Oldcambus. There were a few instances among wheat also; some of them in the Dunbar district. The Humming Bird Hawk-Moth, was a frequent visitant to some gardens during the summer; and being mistaken for a Humming-bird itself, led to a most extraordinary Newspaper correspondence. Numbers of the *Convolvulus Hawk-Moth* arrived in England in the latter part of the season. I have seen only one local example, which was obtained at Dunglass. *Pseudococcus Fagi* has attacked some old Beech trees at Presmennan lake. It appears to have been there for many years, as the trees are much infested.

The Club dined at 3 o'clock at the King's Arms Hotel. The following, among others, were present at this meeting:—Rev. David Paul, Roxburgh, (President); James Hardy, Oldcambus, (Secretary); Robert Middlemas, Alnwick, (Treasurer); George H. Thompson, Alnwick; Matthew Young, Berwick; Robert G. Bolam, Berwick; Gen. Sir William Crossman, C.M.G., M.P., Cheswick; Col. Ralph Ellison Carr, Dunston Hill, Co. Durham; Ald. William Alder, Berwick; William Wilson, Berwick; Jas. Heatley, Alnwick; John Dunlop, Berwick; W. A. Hunter, Duns; George R. Bolam, Berwick; W. T. Hindmarsh, Alnwick; Dr Edward Johnson, Kelso; Rev. B. S. Wilson, Duddo; C. H.

Cadogan, Brenckburn Priory; Rev. Wm. Robertson, Sprouston; Rev. C. J. Cowan, F.S.A., Morebattle; Rev. George Gunn, Stichel; Rev. F. R. Colvin, Edinburgh; William Weatherhead, Berwick; Captain Norman, R.N., Berwick; Rev. R. H. Williamson, Whickham, Co. Durham; Rev. Canon Edmonds, Kylee; James Thomson, Shawdon; Adam Robertson, Alnwick; J. R. Storer, Alnwick; Captain J. F. Macpherson, Melrose; John Scott, Rector of the Corporation Academy; Captain J. A. Forbes, R.N., Berwick; Rev. E. Rutter, Spittal; E. Willoby, jun., Berwick; Charles Watson, Duns.

The unrecorded removals by death of members of the Club up to the date of drawing up this Report (July 1888), have been:—Sir Edward Blackett, Bart., of Matfen; Alexander Scott of Falla; James Nicholson, Thornton; Thomas Patrick, Berwick; Rev. Canon Searth, Milton-next-Gravesend; David Macbeath, Old Charlton, Kent; William Sherwin, The Grange, Farnborough, Hants; William Dickson, formerly of Alnwick; Charles Anderson, Jedburgh; Rev. Thomas Procter, Tweedmouth; Sir Walter Elliot, K.C.S.I., etc. of Wolfelee; Robert Gray, F.R.S.E., Edinburgh; Sir William Marjoribanks, Bart., of Lees; John Hood, Oldcambus Townhead; Rev. F. R. Colvin, Edinburgh; Thomas Robertson Thompson, Alnwick; C. H. Cadogan of Brenckburn Priory; Thomas Broomfield, Lauder; Professor Alexander Dickson, M.D., Edinburgh; Col. Charles Elliot, C.B., late of Madras Artillery, 35 Cranley Gardens, South Kensington. The Club has also lost the services of its esteemed printer, Mr H. H. Blair, Alnwick.

ADDITIONAL NOTES.

Note to p. 24. HELM or HELME. By the Inquisition taken at Corbridge, after the death of Sir Thomas de Umfreville in 1387; it was found that he died seized to him and his heirs male of among others, two parts of Shir-moundene manor and vill, two parts of the *park of Helme*, two parts of six husbandlands and four cottages at Alewenton, the services of two parts of the freeholders of Alewenton, Clenhill, Betlysden, Borouden, Sharbyrton, Thurneham (Farnham), Angreham and Reveley; and of the reversion of the third part of the premises which were holden by Henry de Percy, earl of Northumberland, and Maud de Lucy his wife, by the endowment of her first husband, Gilbert, earl of Angus (Hodgson's Northd., Part II. i. pp. 46-7, compared with Inq., p. M. III. p. 48). The Countess Maud's third part, when she died in 1398, consisted among other possessions of "one

third of the manor of Shirmondesden, and of a pasture called Butterland," the reversion of which belonged to Sir Gilbert de Umfreville, son and heir of Sir Thomas Umfreville, knight (Hodgson, *ubi sup.*, and *Inq. p. M.* iii. p. 243). Here Butterland is the representative of Helme Park. The title of Srenwood Park or Parks still adheres to the steep grassy hill face beyond which Black Chesters camp once stood, rising above the shallow dean by the edge of which the Urn described by Mr Dixon in *Club's Proc.* x. pp. 544-6; and again in vol. xi. pp. 302-4, was found. The name Shirmonddene, Shirmondesden, or Chirmundisden has disappeared. It belonged to the barony of De Vesey, from which it was held by the Lords of Redesdale. Srenwood, in which it appears to be incorporated, is as early mentioned, and had a separate existence when the *Testa de Nevill* (temp. Henry III. and Edward I.) was compiled. In a valuation of the lands which Robert Umfreville, late earl of Angus, held in capite of the king, made in 1331, respecting the thirds or dower of Eleanor, his widow, there are mentioned "rents of free tenants at *Black-helme*, 2s; and lands and tenements in '*Helmesden*,' Clenell, and in other townships, 13s. (Hodgson, *I. ii.* p. 110.) Were these *helms* or *helmes* cloud-collectors, like the *helm* of Cross Fell? which covers the summit like a *helmet*, and the wind that generates in its bosom is called the *helm-wind*.

Note on p. 46. Since this was printed off, Major Thompson has revisited Holystone, and sketched the monumental cross on the cottage wall, and the position of the window head mentioned by Mr Nicholson, which, however, is scarcely cruciform in its aspect. Major Thompson writes: "I see there are other stones in the walls close to these old cottages, which appear to be incised stones, but the walls would require a good deal of pulling about to get at them." In regard to the stone figure at Sharperton (p. 51) he writes: "I also saw the small stone at Sharperton saw-mill with the head on it; the accessories, however, were so imperfect, and so little of it left that I could hardly say if they had been drapery or *wings*. The carving of the head was certainly in too bold relief to have been portion of a 'head-stone.' May it not have been part of some ornamentation of a building that may in former days have been at 'Our Lady's Well'?; this would account for the drapery." Another source for carved stones was the chapel on the Kirk-hill of Hepple. When it was erased in 1760 to build a farm-stead, "the font, and the pedestal were in good preservation, and many mutilated monuments were found both within and without the walls." (Mackenzie ii. p. 75). Any of these could easily have been carried off to Sharperton. Major Thompson made a drawing of the inscription on the door-head at Sharperton (p. 51) from which it appears, as I expected, that in conformity with the Book of Rates, the first letter was G and not C: and that George Pott or Pots was the first erector. The letters are peculiar and can only be represented by an engraving. They are in common capitals.

G P E P 1675
R O G E R , P O T S

He also copied another inscription on what would appear to be a restoration.

S

H . D

1780.

These are probably the initials of Henry Dodds who voted for a freehold in Sharperton in 1774. (*Poll Book*, p. 184). James Dodds voted for the same in 1826 (*Ib.* p. 41), and I see another James Dodds still enrolled.

Michael Potts of Sharperton, co. Northumberland, vintner, was a witness against K. Charles I., Jan. 24, 1648. See the characters of the witnesses in Kennet's *Hist. of England*, III. p. 168.

William Potts of Lanternside, p. 49, died there Jan. 17, 1773, in the 107th year of his age. (*Richardson's Table-Book*, II. p. 214).

*Contrasts between the Scottish and Skandinavian Floras,
with a few remarks on the Scenery.* By CHARLES
STUART, M.D., Chirnside.

IN a short tour in the Hardanger region of Norway, undertaken with the Scottish Alpine Botanical Club, in August 1887, I had an opportunity of comparing the Alpine Floras of both countries, as well as the general character of the scenery of Norway with that of Scotland. Norway is a grand country to travel in, everything being different from our own—people, houses, and plants. The houses are built of wood; in colour, brown, red, or yellow; the churches also are of wood, with strange looking steeples; pine-clad hills: "water! water everywhere," with large masses of mountain rising out of the water with considerable uniformity in their configuration and sky line. In Scotland their configuration and sky line is to the picturesque advantage of that country, when compared with many of the mountain masses seen in the Hardanger region. In Norway there is also a want of animal life, which produces a melancholy "eerie" feeling which the tourist rarely experiences in Scotland. Lonely and solitary Norway undoubtedly is. No one ever told me so; for although I was always in cheerful company, I felt it so to be when separated from my companions on the hillsides. The people are an honest-faced race; simple in their ways, and very civil and obliging. They are however very independent, and there is neither fawning nor cringing in their manners.

A run of 36 hours from Leith, in the good ship *St. Sunniva*, brings the traveller to Skudesnaes in Norway, a bare rocky, forbidden-looking coast. A few hours farther steaming, and the anchor is let go opposite Lervig, in smooth water, where we enjoy a quiet night's repose after the stormy North Sea. If the ocean is ever rougher in crossing than was our experience, I hope not to be present on the occasion. The roar of the storm and rushing seas, with the roll of the ship are something to remember when it is past, and it is extraordinary how soon it is all forgotten. We were again in motion at 2 a.m. of the 12th, and after a charming sail up the Hardanger fiord, of eight or ten hours, we were landed at Odde, situated at the end of the Sorfiord, a branch of the Hardanger, in the steam launch. The scenery on both shores of the fiord was very sublime. A number of our party were on deck before 5 a.m., when the air was felt to be very sharp and bracing. The weather was brilliant, the sun shining all day long.

The whole surroundings of Odde are most attractive. Froude describes the place, with its cherry orchards, blue lake, and tumbling river, as the prettiest spot he visited in all Norway. A mile's walk and the shores of the Lake Sandevan are reached. There is a new road on which you can drive to the lake, but the old road is the more secluded, and close to the lake where this old road commences, is a botanical wilderness well worthy of more exploration than we had time to bestow upon it. Groves of Juniper, covered with a profusion of berries, which no one without seeing can have any conception of, cover many acres; while the ground is carpeted with *Linnaea borealis*, *Cornus Suecica*, *Vaccinium Vitis-idaea*, *Vaccinium uliginosum*, *V. Myrtillus*, all covered with berries. The *Cornus* rarely fruits in our Scottish Highlands. Here the scarlet coral-like berries coloured the whole place. The *Vaccinium uliginosum*, the great bog Whortleberry, rarely fruits in the Highlands; here the little bushes were covered with their black berries as large as black currants, with a bloom over their surface like a black Hamburg grape. The *Vaccinium Vitis-idaea* attains a luxuriance we never see in Scotland, the leaves being very much larger and covered with its scarlet berries. Many flowering plants brightened this botanical wilderness—*Silene rupestris* and several varieties of *Campanula rotundifolia*, with wild roses. However we dared not linger, as we were bound for the Buarbrøe glacier, some distance off. At

the shore of the Lake Sandevand, where we were ferried across in native skiffs, to Jordal, the cherry trees (small standards) were loaded with a profusion of fruit. The white heart variety I never saw of finer quality. A bright red variety was the commoner sort grown. The trees were of a weeping character, and beautiful objects to look at. On reaching Jordal—a hamlet embowered in cherry and apple orchards loaded with fruit, we followed the track by a river coming from the glacier. The air was warm, and our walk a very hot one, for several hours, through groves of *Alnus incana*, which supplants *Alnus glutinosa*, the common alder of this country. We at length reached the Buarbrøe glacier, having refreshed at the Buar Farm, the last in the valley. This glacier is an offshoot from the Følgsfund snow-field, which extends for 40 miles, and of which we had an excellent view in sailing up the fiord in the morning. A rushing river escapes from a blue ice arch and tumbles in rapids and cascades, towards the lake we crossed. The sides of the mountains were clothed with *Polypodium Phegopteris*, the Beech fern, interspersed with golden patches of *Struthiopteris Germanica*, the Ostrich-feather fern (a continental species) which gave a character to the hillside, previous to reaching the glacier. Close to the ice and snow, in the debris of the moraine, by the side of the glacier, grew *Saxifraga rivularis*, which, although in abundance was by no means so luxuriant as on Lochnagar or Ben Nevis or in Glen Spean. A little higher *Saxifraga cæspitosa* was detected in second flower, the flowers almost sessile. The seed of the first flower was quite ripe, and I have now young plants from the seed I carried home. This was also a very interesting plant, as we had gathered it the previous year in Glen Spean after being lost for 50 years; being then gathered on Ben Avon by the late Dr Martin Barry. There were also *Saxifraga nivalis*, *S. aizoides*, *S. aurantiaca*, and *S. stellaris*. *Saxifraga Cotyledon*, a most handsome species with its white feathery plumes of flowers, was in great beauty higher up on the rocks. It is the commonest Saxifrage in the Hardanger region. *Silene rupestris* grew everywhere, and is perhaps the best alpine we obtained in the country. It is a singularly elegant plant, with its slender stems and white flowers. *Gentiana purpurea* was sparingly gathered, and is new to us all. The other plants were *Gnaphalium Norvegicum*, *Bartsia alpina*, several *Curices*, grasses and willows, with *Arabis perfoliata*,

Trientalis Europæa, *Actæa spicata*, *Rhodiola rosea*, *Sedum annuum* and other well-known alpine. *Struthiopteris Germanica* and *Woodsia Ilvensis* were the two best ferns obtained, and both grew everywhere. After a rough scramble we returned to Odde, which we reached early in the evening. A bouquet of green oats, rye, mountain-ash berries, and native grasses in the middle of the dinner table was no doubt placed there to astonish the botanists, and seemed somehow to accord with the wild surroundings of the place. The Buarbrœ glacier is a beautiful object with none of the fearful crevasses which are encountered in the Mer de glace in Switzerland. The ascent from the blue arch is very steep, and as stones come rattling over the edge of the glacier, loosened by the heat of the sun, it is well to give a good wide berth to its margin.

After a night's rest we were early astir in a native steamer for Eide, situated on the Hardanger, en route for Vik, which we intended to make our headquarters for a few days. Eide is a most charming place with several fine hotels. It is on the post-ing route to Vossvangen, and cavalcades of carriages wait on the pier to convey tourists to their destination. On arrival we changed our baggage to the Vik boat, and began on board to arrange our plants which had not been looked at since we left the glacier. The steamer's deck was littered with our debris, but the sailors only looked and laughed. Being moored alongside the quay, we went out and into the vessel when we liked. A fine wooded mountain side came right down to the water's edge. I made several raids up the rocky and moss-grown faces of this hill close to the quay, getting quantities of *Woodsia Ilvensis*, *Asplenium Trichomanes*, *Calamintha Acinos*, *C. clinopodium*, *Silene rupestris*, etc., etc. After luncheon at the Eide hotel (Mœlands) we sallied out for a short excursion, following the course of the fine trout stream on the Voss road, till we arrived at a point where it left the lake, about two miles off. Crossing a wooden bridge to the left, we made for a birch wood where many moss-grown boulders had fallen from above, and seemed to invite inspection. Huge masses of rock, piled one upon another in the wildest confusion, afforded a shelter to a wonderful Alpine Flora. *Linnaea borealis* was trailing all over the place. *Actæa spicata* in fine fruiting condition, was plentiful; its rich black berries making the plant very striking looking. It grows in Yorkshire and north of England, but is nowhere in this

country very plentiful. *Maianthemum bifolium* a pretty lily of the valley looking alpine, was in abundance with the common lily of the valley, *Convallaria majalis*. Long trails of *Lycopodium annotinum* rambled over the rocks, which were clothed with the highly coloured pectinated stems of *Hypnum Crista-Castrensis*, *H. splendens*, etc. We worked among the boulders, getting many specimens of other alpine plants and ferns, of which the above mentioned form only a fraction, and reluctantly left a rock garden, the perfection of which I shall never forget. In passing to the birch wood, a glimpse of a bank of *Cornus Succica* was obtained, to which I was determined to give a closer inspection. The *Cornus* was in the finest fruiting condition, many of the little plants carrying as many as nine scarlet coral-like berries on their summit. The profusion of the plants was extraordinary, extending for many acres over the hill-side. *Vaccinium Vitis-idaea* was associated with it, trailing over the ground, covered with clusters of its bright scarlet berries. These gave a colour to the hill-side, which, without any exaggeration, I can liken to nothing but nature's carpet bedding. No one could pass such a scene without feelings of intense admiration; and I only regretted, when the time came, for leaving such a feast of beauty. I would willingly have come all the way to Norway to have seen this *Cornus* bank, and the rock garden in the adjacent wood. The blue lake and river, with the finely wooded rocks on the opposite side, rising thousands of feet high, formed a picture which is vividly impressed on my mind. With feelings of regret, Eide was left in the afternoon, and we reached Vik situated on the Oiford, about 10 p.m., where our rooms being previously secured, we were all comfortably accommodated at the brother Naesham's hotel. Rain was falling and the night was very dark.

After a good night's rest I sallied out for a turn before breakfast. The situation of Vik is grandly picturesque, surrounded as it is on all sides by almost perpendicular mountains, composed principally of gneiss; their rocky sides, scarred with the glacier striation, visible at a mile's distance. In winter the sun can scarcely reach the place at all. Notwithstanding this, the cherry flourishes on low standards, covered with fruit, and the strawberry is as fine as in Scotland. A salmon river enters the head of the Oiford close to the hotel, which has its origin in a lake, almost two miles off, into which another river falls. This seems the general arrangement in Norway. Some of our party on the

15th enjoyed good sport on the river, killing 28lb of salmon-trout, one of which weighed $7\frac{3}{4}$ lbs; with the rain the river rose, allowing a free run for the fish on the Sunday when the nets are withdrawn from the fiord. It was easily seen that we were in a much wilder region than we had yet visited. Close to the hotel door the *Arabis petræa*, a rare alpine in Scotland, grew in the gravelly debris washed down from the mountain by the winter floods, with many other strictly alpine plants. There is a fine old Lutheran church, dating back to the 12th century, at Vik, but there was no service on the Sunday when we were there. *Silene rupestris* grew in quantity on the gravel of the river bank, and a quantity of seed was obtained, from which I have succeeded in raising plants. Mr Lindsay, curator of the Edinburgh Botanical Gardens, considers it to be upon the whole, the best alpine we got in Norway. Of elegant dwarf habit, its slender stems and pretty white flowers are very attractive. *Impatiens noli-me-tangere* was growing in sheltered rocky hollows, while *Saxifraga Cotyledon* studded the moss-grown slabs, with hundreds of its neat rosettes, but sparingly in flower. Above the hotel, about 1000 ft. however, near a water-fall, its white plumes were splendid. Among the moss-grown rocks fallen from above, *Woodsia Ilvensis* was finer than I had yet seen it, the fronds attaining considerable size; while in its company among the moss, I succeeded in finding four patches of *Asplenium septentrionale*, which still grows on Samson's Ribs, Arthur's Seat, Edinburgh. This fern was only sparingly collected, but I have succeeded in growing it here on the rock border from Vik. The *Woodsia* was in rare luxuriance, and one could hardly pass the grand fronds without wishing to carry away the plant.

On Monday the 15th, we made our excursion to the Vørein foss, which entailed an early start in the morning. The Norway Tourist Club are making a road in the rock, by the side of the lake, to enable the traveller to visit the foss by land, and 150 men are at present employed by the shore of the lake, blasting the rock with dynamite for this purpose. The loud reports of the blasts, reverberating from hill to hill resemble thunder when first heard, huge masses of rock falling into the water. So on reaching the lake, we got into a good-sized boat, and hoisting a sail, by the aid of a strong west wind we speedily reached Maabe, a farm and hamlet at the head of the lake, and quickly getting into marching order, started by the Vorein pass for the foss. The

walk is a long and steep one, which is not felt so much in going as in returning. Under a rock by the path *Verbascum atrum* and *Impatiens noli-me-tangere*, were growing together in profusion. A little higher up, in crossing the stream by a wooden bridge, I espied a plant by the river, which, at a distance looked a *Delphinium*, but on closer inspection proved to be *Aconitum septentrionale*, the best herbaceous plant we found in Norway. The flowers are of a purple peach colour, and its size resembles our own *Aconitum Napellus*. A bright coloured *Centaurea* of dwarf habit, brightened the pastures with *Scabiosa columbaria* and *Erigeron acris*. On a gravelly face *Astragalus oroboides* flourished in the loose soil. Passing on, over paved rocks for miles, with a very steep inclination, we toiled on, with a precipitous rocky carry in front of us, but crossing a wooden bridge to the left, over a rough tumbling stream, we avoided it. From this point, a tough climb brought us to a scene of great grandeur. Gigantic rocks piled upon one another, seemed to dam up the river, which expanded into a small lake. The *Saxifraga Cotyledon* was here in great beauty, with splendid feathery heads of white flowers. On a flat mossy slab were quantities of young plants sticking in rosettes. Under a rock, spreading on a mossy bed, *Linnaea borealis* was profusely flowering, much higher in colour, pinky orange, than ever seen in Scotland. I never saw it before in such fine state, its fragrance pervading the air in this wild region. A mere ledge was all our path, the rushing river at our feet, perpendicular rocks above, and so we proceeded till we arrived at a sceter picturesquely perched on a bank above the river, where refreshments in a plain way can be obtained; and I believe beds for young men, who are not afraid to rough it and breathe the sharp morning air of the Vorein pass. The place reminded me of the Tete noir hotel in the Swiss pass of that name, with its shed in front, where the ponies were munching their mid-day meal. In Switzerland of course, it was kicking screaming mules. Still there is a likeness between the two places.

The upper Vorein Valley was wreathed in smoky mist, which came down on us and made us feel as if enveloped in a wet blanket. Nothing daunted, we again crossed the tumbling river by a rustic bridge, and pushed on till we arrived at the chasm or Cul-de-sac, in which the fall expends its force. The sheerdown fall is more than 500 feet, but where the water com-

mences to roll over the mountain side it is 2500 ; with a noise of thunder it falls, sending up a smoke like out of some mighty caldron. The Vorein foss was only discovered in 1826, and is considered one of the finest falls in Norway. Walking with some difficulty to where it reached the great pool, into which it fell—a more sublime spectacle no man ever saw. No words can picture the grandeur of the scene. The sun did not shine, and a subdued light brooded over the dark mass, which forms the wall of the mountain. The water churned into foam fell like the folds of a bridal veil, hanging as it were in mid-air as if reluctant to come down ; the whiteness of the vast mass of water being very striking. Its roar was like thunder. The whole upper part of the valley was filled with vapour, which came down on us like a small rain ; the temperature causing a chill which it took some time to recover from. The walk down the pass proved a long business, but at length the lake was reached ; but owing to the size of our boat and a high head wind, most of us got a good drenching in getting into it, as the bow was a-ground. Owing to this we had a long pull to the Vik end of the lake, as the dynamite blasters warned us off their shore in case of accident ; their operations going on all the time we were on the water. A brisk walk of two miles put our blood again in circulation, and after a thorough change we were soon seated at the dinner table. Our fishers had got a plentiful supply of “ Laxa,” the Norse name given to all fish of the salmon kind, and which appears, with more to follow, at every meal. Our excursion was a very successful one, and the weather was fine throughout—time about ten hours.

On Tuesday the 16th August, at an early hour, we got into two skiffs waiting for us at the quay in front of the hotel, and after an hour's row reached Saed at the entrance to the Sœmidal pass. The water of the fiord was like glass ; the morning rather threatening, although we escaped rain of any consequence all day. The first three miles of our land journey was over a well-made road through meadows, where the haymakers were busy, to some little farms, where they had fine ponies and carriages, which they offered in returning to convey us to our boats. In passing along, Prof. Traill of Aberdeen picked a beautiful double form of *Silene rupestris*, which I hope he has got to grow. A two hours' walk brought us to a most romantic part of the pass, where the Skidjefoss comes tearing over the edge of a

precipice 2000 feet high. This fall is well worth for itself coming to the Sœmidal to see, and I never intended proceeding farther. However with the example of other adventurous spirits I was enticed on, over a very rocky steep path indeed, enjoying the splendid views of mountain, wood, and water. The cloud scenes were very memorable;—gauzy films of white mist floated horizontally along the rocky faces of the precipices: indeed the first look of the Skidjefoss was through the mist which eventually lifted, giving a complete prospect. The bulk of falling water was not nearly so great as the Voeringfoss, but the height of the fall from below was tremendous. On a huge mass of rock as high as a church, fallen from above, standing in the middle of the stream, one of our men climbed to the summit and brought down a plant of *Saxifraga Cotyledon*, with a very fine head of white flowers. The habit and inflorescence of this plant were perfect, and different entirely from the ordinary type. I named it *Saxif: Cotyledon compacta*, to enable us afterwards to distinguish it. Proceeding onwards we gathered *Astragalus oroboides*; *Convallaria polygonatum*, a form of the Solomon's seal; *Convallaria majalis*, Lily of the Valley, in profusion and in fine fruit; *Maianthemum bifolium*; *Ranunculus aconitifolius*, a single form of what is popularly known as Bachelor's Buttons, or Fair Maids of France of our flower gardens; and *Aconitum septentrionale* plentifully near the upper fall. *Campanula latifolia* covered entirely the sides of a dell, with many white specimens among the blue—a most beautiful sight. *Mulgedium alpinum*, Blue Sow-Thistle—such a rarity in Scotland—covered quarter of an acre, in bright flower, which was of a much higher colour than seen in Scotland. There were also *Gentiana purpurea*, *Saussurea alpina*, and *Stellaria nemorum*. On a moist ledge near the upper fall *Saxifraga cernua* was got, but not in flower. Its habitat here was somewhat different to that whereon it grows on Ben Lawers, where it flourishes on drier rocks where no doubt it will get plenty of misty vapour and rain, but not the very wet peat as on this ledge on the Soemidal. I have rarely seen its flower expanded either in Scotland or Norway. *Fragaria collina* grew by the track; also *Bartsia alpina*, *Rhamnus frangula*, *Arabis alpina*, *Silene maritima*, *Hieracium aurantiacum*, and *Saxifraga aurantiaca*. The latter was hanging over a dripping rock, growing in the peat, and the flowers were much darker than I have ever before seen. It is growing with me in habit and inflorescence perfectly

distinct. We lunched among the rocks just under the upper fall, to which a rocky natural staircase conducts; the plants immediately before this ascent being in profusion. Our guide carried, I should think painfully, our provisions, and not without breaking some of the bottles, the contents of which he got the credit of appropriating. The botanical boxes get so heavy that on difficult ground they become a great encumbrance, and we are only too glad to get our guide to carry any extras. The profusion of the plants quite close to the track is most astonishing in this pass—all the best things grow plentifully, and in returning many more specimens and seeds were added to our already well-filled cases. Adventurous spirits cried "Excelsior," but having had enough of climbing, with several friends we retraced our steps, and reached the farms, where little girls brought us plates of raspberries, currants, and cherries for a consideration, which brought moisture to our parched mouths; and after three miles road walking, we reached Saed. It was a mighty long time however, before the rest of our party appeared, and we were glad to get into the boats and be rowed to Vik, where we arrived about 7 p.m.

We were all sorry to leave our comfortable quarters, next day the 17th August, but as the steamer did not sail for Eide till after lunch, we made a raid to the rocks above the hotel, where we had some fern-gathering till we required to leave. On reaching Eide after a pleasant sail, we found a number of carriages on the quay waiting our arrival, and after transferring our impedimenta, set out through most romantic scenery, to Vossavangen, which we reached about 10 p.m., cold and hungry. The drive from Eide is a most interesting one. After leaving the latter place with its beautiful surroundings, the road winds by the shore of the lake, often scarped in the rock, and cutting some ugly corners. After passing the end of the lake, a very steep ascent commences, which requires us to leave the carriages and walk. The road is in zig-zags as on Mont Cenis, scarped often in the rock. The pedestrian can cut the corners by making a straight ascent, but we were all more or less blown when we reached the head of the pass and the watershed. The stream now ran in the Voss direction. Looking down, the views were charming. A fine waterfall discharges itself over the rocks, at the head of the pass, the only sign of human existence being a saw-mill picturesquely perched above the fall. On a marsh on

the summit, *Andromeda polifolia* and *Vaccinium oxycoccos*, the true cranberry, were gathered, and several stunted heaths were observed, by no means common in this part of Norway. Vossvangen is on the regular tourist route from Bergen. Immense numbers of carriages and ponies can be turned out on occasion, to transport the travellers to the romantic scenes in the neighbourhood. We were comfortably accommodated at Fleischer's Hotel, where we got the best trout we had seen in Norway; also reindeer venison nicely cooked—a change from the hard tough meat (probably “pony”) which in the wild regions, we were condemned to consume. Next morning we were transported by a wonderful railway to Bergen, which we reached in a leisurely fashion, about mid-day, having passed through about sixty tunnels in 64 miles. The scenery all along the track was most attractive, and much softer in character, than where we had been. At Bergen we joined our good ship the *St. Sunniva*, where we again occupied our former quarters. The North Sea for a few hours after leaving Bergen, gave us a taste of its quality, but we managed to sail out of the storm, and after a pleasant voyage, reached Aberdeen and Leith roads about mid-night of the 19th, and Berwickshire on the 20th, at 9.30 a.m., having been absent just 10 days—the weather on the whole being fine throughout.

The absence of many of our Scottish plants in Norway, cannot fail to attract attention. There are no globe flowers, *Trollius Europæus*, by the river banks, and no wild Thyme, *Thymus Serpyllum*, among the gravel. Neither the broom nor the whin, two of our most ornamental plants when in bloom, are to be seen. No wild honey-suckle rambling over the tree trunks. Neither holly nor ivy are visible. Instead of “the burr thistle spreading wide among the bearded bear,” our National emblem, a small *Carduus incanus* var. *setosus* takes its place. No daisies nor dandelions—very little fox-glove—only seen about Odde, although we were on ground constantly, where in Scotland, we would have been sure to have met with it. A very common plant the Rag-weed (*Senecio Jacobæa*) was never seen. The hemlock, *Conium maculatum*, and *Armeria maritima*, sea-pink, both common Scottish plants, were absent. *Asplenium viride* (the green spleenwort) so beautiful in moist crevices, and *Saxifraga hypnoides*, the mossy saxifrage, both common in our country, are wanting here, and many other names might be added; the above mentioned may be taken as a sample. In conclusion, I have to record with

the deepest feelings of regret, the great loss the Berwickshire Naturalists' Club and the Scottish Alpine Botanical Club have sustained, by the sudden death of Professor Alexander Dickson, the President of the Scottish Alpine Botanical Club. In Norway he was the genial companion and friend of all. Of a singularly gentle nature, and modest demeanour, he was respected and beloved by everyone, and it will be a long time till we see his like again. I add the accompanying lines.

IN MEMORIAM.

“ We are survivors ; from the echoing street
 One more familiar footstep dies away
 Into eternal silence. Day by day
 Some eye that brightened, some brave heart that beat
 Is closed and stilled. Alas ! those hurrying feet
 Where are they fled, bearing the bright array of
 Wisdom, beauty, youth ! and where are they ?
 Whose living love, made life and leisure sweet ?
 I cannot deem they are departed quite,
 Transfigured, changed, and vanished from our eyes,
 But living to us still, tho' lost to sight,
 And surely sharing still, our smiles and sighs ;
 A self-made creed, begot of memories !
 Yet, if I err, whose voice shall set me right ? ”

On Bonchester, Rule Water. By WALTER DEANS, Hobkirk.

It is unnecessary to discuss the etymology of Bonchester, locally named Bunstir. The camp on the hill supplies its appellation to the lands.

The lands of Bonchester appear in former times to have formed one estate or farm, but had latterly been divided into Upper and Nether Bonchester. Both estates were in the parish of Abbot-rule ; and at the Reformation, Bonchester was valued at 30 shillings, and was rented from the monks of Jedburgh, by a branch of the Turnbull family. The old place of Bonchester was situated on the north shoulder of Bonchester hill, at the head of the hollow called Rob's Cleugh, a possible corruption of Robbers' Cleugh, a name which would once be very appropriate to the tenants of Bonchester.

The foundations of Bonchester are of considerable extent, and are now deeply covered with the green turf. On examining the stone-dyke opposite to what is now the march between Nether Bonchester and Gatehousecote, I found that the stones of the old dwellings had been all used for dykeing purposes; the window soles and lintels supplied copes and bands. For an old Border steading, the situation could hardly be surpassed. It commanded a complete view of almost every tower and peel from Wauchope to Bedrule. Behind were the old camps or hill-forts of the aborigines; and in front down in the vale, lies the field called Jeistings'-haugh, where in times gone by, the youths of the district assembled to learn the use of the bow, and to practise tilting with the spear. The field above Jeistings'-haugh bore the name of Forster's Buss, from a tradition that Forster, an Englishman, was killed there in single combat by one of the Scottish Borderers. The rising ground on which the onstead of Nether Bonchester stands is the Rae-know, said to signify the Battle-knowe. From the public road opposite the onstead there is a fine echo; words being repeated with great distinctness and rapidity.

In the predatory life of freebooting times, the Turnbolls of Bonchester sustained a conspicuous part. In 1502, Peter Turnbull of Bonchester produced a remission at the Justice Ayre for "airt and pairt of the crewel slaughter of James Rutherford, at the Kirk of Hawick; item, for airt and pairt of the burning of Barnhills, and also of twelve score bolls of oats, and six score bolls of bere, and sixty bolls of wheat pertaining to George Rutherford of Langnewton; item. for airt and pairt of the hereshipe of 25 oxen, 27 cows, and 15 young nowte, and also 60 sheippe." From this account, George Rutherford must have been a landed gentleman, for that period of considerable wealth, the whole of which was ruthlessly destroyed and stolen. We find also Peter Turnbull accused of "airt and pairt of houses and other goods to the value of £20 at the time of the burning of Barnhills, pertaining to the said Rutherford." Turnbull was also indicted for "the stealing of oxen, cows, horses and mares, furth of the place of Cayms (Minto Kames), in company with King's rebels—Turnbolls at the horn. Item, for the treasonable in bringing of the English to the hereshippe of March-Cleugh, and stouthreiff of 4 horses from Robert Lauder, and for takeing of the said Robert against his will, and keeping him in Bewcastle

till he redeemed himself. Item, for the stouthreiff of 26 goats, from John Cleghorn of Leithanhope." These and many other "Items" appear against Turnbull, for which Adam Turnbull of Bullerwall became his security.

At the Reformation, the Turnbulls were still the tenants of Bonchester, and after this epoch, like many others of the Abbey tenants, acquired a proprietary right to the lands. Bonchester appears to have been divided before the close of the 16th century, for in 1643, Thomas Turnbull was laird of Upper Bonchester. William Turnbull succeeded him, and died in 1686. A tombstone was erected to his memory in the kirkyard of Abbotrule, which can be seen standing placed against the wall of the old Kirk. He was succeeded by George Turnbull, who died in 1728. Adam, a son of William Turnbull, appears as tenant of Doorpool; and we also find at a later period, the Bonchester Turnbulls as tenants of Woolie Mill, Hartshaugh Mill, Harwood Mill, and Hallrule Mill.

Walter Turnbull, of Harwood Mill was said to have been a man of great strength and agility, and a famed player at the Hobkirk Ba'.

John Turnbull, a son of Robert Turnbull, of Hallrule Mill, was strongly imbued with the ancient spirit and daring of the Turnbulls. The Border fairs, at a former period, were often the "Meets" at which "auld sairs" were settled, and Turnbull was always foremost in the fray. One fair day on entering a public house at Jedburgh, accompanied by his mother, Tibbie Donaldson, Turnbull was immediately surrounded by a company of "pairt-takers" of one with whom he had formerly been at feud. Turnbull lost no time in attacking the whole band, and had them soon sprawling on the floor. His mother, who witnessed the fight, declared that "ma heart was wae to see them a' gushin' an' bluidin,' and oor Jock knockin' them doon."

George Turnbull, who died in 1728, was perhaps the last Turnbull of Bonchester. He had a daughter, Margaret, who was married to William Turnbull, in Hartshaugh Mill. The Bonchester Turnbulls in the male line are now extinct in the parish; though many in the female line, who reside in the district, are related to them.

After the lands of Bonchester were divided, the Nether section came into the possession of a family of Scotts. The late Walter Riddell Carre, of Cavers-Carre, in his volume of "Border

Memories" omits mention of the Scotts of Bonchester, although he glances at the Scotts of Wauchope, and dwells at length on other branches of the name.

At the time of the division of Bonchester, much of the Nether estate would be clad with old forest relics, principally birch, hazel, sloethorn, and 'hackberry'; while whin and briar, and broom would monopolise the haughs; for at that period most of the cultivation was confined to the higher grounds. With the improvement of agriculture, Nether Bonchester would become much enhanced in value. The Scotts of Bonchester were said to have been descended from a branch of the Harden family. In 1600, James Scott of Bonchester is mentioned in a title-deed as having been in possession. He was succeeded by Thomas Scott, who had a number of transactions with John Kerr of Grange, in Abbotrule, in the year 1631 to 1633, relative to feu duties. In 1643, Nether Bonchester was valued at £180 Scots. Thomas Scott died in 1680, and was succeeded by his son, Walter Scott, who was born in 1650. A brother of his, George Scott, appears on the list of those proscribed in 1684 for Nonconformity. Walter Scott died in 1733, at the age of 83 years. His remains had the use of the Hobkirk Parish new mort-cloth.

"1733, May 20th, given in for ye use of ye moar cloth to Netherbonchesters corps, 17 shillings Scots."

Walter Scott left two sons, Walter and John. Walter succeeded to the estate, but unfortunately John took part in the Rebellion of 1715, and was taken prisoner; and being afterwards tried, was sentenced among several others to banishment to America. On landing, Scott, and his fellow convicts were sent to labour at a Government building, when the following singular occurrence and meeting took place. One day as Scott was heaving up stones to the masons, the wife of the Governor, who happened to be standing near recognised Scott, and slyly remarked; "*That stane wad row easier doon Bunestir hill, than up there.*" The Governor having recently been married, and no one knowing anything of the antecedents of his wife, Scott was questioned on all hands as to her former position, but his only remark was, that all he could tell them was, that for every one at her back now, she had ten at her tail when he last saw her; the occasion being when she was whipped at the tail of a cart through the streets of Hawick. This politic reply of Scott soon brought a change for the better in his condition and prospects. He was relieved from further

labour, kindly treated, and shortly after put on board a ship and sent home. He did not, however, return to the banks and braes of Bonchester, where he spent the happy days of youth, but afterwards lived and died in the Isle of Jersey.

Walter Scott of Bonchester died in 1743, and left a large family of sons and daughters. His eldest son, Walter, dying, the estate was inherited by the second son, Thomas, who was the last Scott of Bonchester. Thomas Scott appears to have been a business man in his day. Under him, Bonchester was greatly improved by fencing and running the marches; for at that period scarcely any of the lands of the Parish were enclosed. Marches between proprietors were often constructed of a low *feal* dyke, and sometimes a "loaning" was the march. As the district from repeated cutting of timber for fuel, was now getting bare of natural wood, Mr Scott conceived the idea of making a nursery for the raising of young trees. He built a cottage on Bonchester haugh, on the march between Bonchester and Langraw, and enclosed two acres of ground for the purpose. Mr Scott also for some time farmed Maxside, and was also factor for Mr Lyle of Stonedge. Mr Scott at a later period fell into difficulties, and was obliged to sell Bonchester, which was purchased by Mr Oliver of Dinlaybyre, who at the same time was proprietor of Weens. The then Duke of Buccleuch, out of personal regard for Mr Scott, as one of his own kin and name, kindly gave him Bowhill farm to live in, where he ended his days. He died at the age of 78, and was interred in Hobkirk Churchyard. A small stone was erected to his memory, and that of his wife, Hanna Barnet, and also of a daughter named Nelly, who died young. He had also a daughter married to Dr Lorraine of the Glasgow Academy.

Mr Scott had also a younger brother, the Rev. William Scott, who in 1764 succeeded the Rev. William Turnbull in the ministry of the parish of Abbotrule. After the suppression of that parish in 1777, Mr Scott was translated to Southdean in 1785, and died in 1800. From a poem to his memory by Thomas Oliver, a rhymmer at Southdean, Mr Scott appears to have been seized with his last illness in the pulpit:—

"I saw him from the kirk descend,
And in five hours his life did end."

A monument was erected to his memory in Southdean Churchyard. He wrote an account of the Parish of Southdean, which is contained in Sinclair's "Statistical Account," Vol. XII., p. 67.

Mr Scott left a family of four sons and one daughter, some of whose descendants still survive.

During Mr Scott's incumbency at Southdean, he is said to have had an encounter with a ghost, the circumstances of which are still handed down by his descendants in truth and verity. One evening as Mr Scott was riding home from a meeting of Presbytery accompanied by two other reverend brethren, on nearing the manse, there passed close by them, a figure on horse-back, so real yet unearthly, that they felt in a manner paralysed and unable to speak. They had not gone far, when the figure and horse were seen coming towards them the second time, and repassing so close as to be distinctly visible to all the three. Mr Scott then remarked, "did I not know that he was lying on his death-bed, I would say that was the Abbot (meaning Mr Kerr of Abbotrule), if he comes again I shall strike him with my whip." Very soon the figure passed for the third time; but when Mr Scott raised his whip to strike, he felt his arm fall powerless by his side. On reaching the manse, they related the occurrence; but so much were they unnerved and terror-stricken, that it was sometime before they could speak. The death of Mr Kerr was intimated at the manse next morning; it having taken place as near as they could judge at that very moment his *wraith* appeared.

The old house of Nether Bonchester was situated in a wet hollow, above the bank, a few yards below the garden of the present farm-house. A portion of it was standing about 50 years ago. It was two stories in height, and appeared to have been built with clay mortar. When taken down about a hundred years since, the doors and flooring were partly utilised for one of the cottages at Bridge-end. The doors were of red Memel and heavily panelled.

After the estate had been acquired by Mr Oliver, great improvements were initiated; a stone bridge was thrown across the Rule, and the new road conducting to Newcastle was formed through the vale; the cottages at Bridge-end were also erected, with the exception of the public-house, which had been built some years before by Mr Chisholm of Hobsburn. This had been originally intended for a house and joiner's shop, but was subsequently converted into a public-house, and was tenanted by Robert Turnbull, one of the old Turnbulls of the Rule. The well cultivated haugh of the indwellers of Bridge-end was at the time when

the cottages were constructed, a complete waste covered with whin and broom; but the proprietor by granting the allotments at a low rental, enabled the occupants to improve the land to advantage. Among the first indwellers there, were Gilbert Boa, mason; William Laidlaw, road-contractor; and George Stevenson, blacksmith. The cottages were at first thatched with broom, an article which at that time greatly abounded in the parish, but they now participate in the advancements of recent times, and the proprietor, Mr Tancred of Weens, has added much to their amelioration and comfort.

St James's flood, which happened on the 9th of August, 1806, wrought much havoc through Teviotdale, and nowhere was the flood more severely felt than at Bridge-end. The inmates escaped with their lives, but much of their property was swept away. The haugh which had cost them so much labour and charge to improve was again rendered a waste of gravel. Shortly after this disaster, a byre belonging to one of the indwellers took fire, and a horse and a cow were burned to death. On the 29th July, 1846, exactly 40 years after the former flood, an immense deluge accompanied by fearful lightnings and thunder swept down the Rule valley. The river rose from ten to twelve feet above its ordinary level, and according to the testimony of the older inhabitants, the Rule was higher than at the flood of 1806. Large trees were floated past. Much damage was done at Bridge-end, as the water in front of the cottages rose to a height of five feet. The aged inmates were borne to places of safety on the backs of the young and sturdy. Several people dated their decline in life to what they endured on that dismal night. The flood was at its greatest height at midnight, and as the morning dawned, the disasters were revealed. Thomas Boa and William Dun were the only individuals who had stuck to their houses; all the rest had fled. Hobsburn stone bridge was entirely swept away, as were many other in the district. Many curious details are still preserved by the old people of what happened on that dreadful night.

Bonchester is now the stamped title of the local Post-office, where a considerable amount of postal business is transacted; and a Money Order Office and Savings Bank have been established, to the great convenience of the district. Few places in the South of Scotland can vie with Bonchester Bridge for romantic scenery. The banks and braes of the Rule are covered to the

brink with a variegated woodland. The rural quiet is unbroken by the rush and shriek of the locomotive. Still undisturbed, the howlet continues its solemn screeching in the silence of the midsummer even; and at early dawn, the amorous cushat "makes music that sweetens the calm."

BRAIDHAUGH.

Though the name implies a situation in a haugh, yet this old steading in the vicinity of a haugh of 9 acres, was located on an elevated plat on the west shank of Bonchester hill. Braidhaugh was within the parish of Abbotrule, on the right bank of the Rule, and the site can still be distinguished on the left side of the public road, where a gate opens into what is still called the Braidhaugh park. Another old place, Thornton or Thorntoun, stood a little below, at the head of the bank. The name is still preserved by a deep pool in the Rule, which appears to have been nearly opposite to the old dwelling. Braidhaugh seems to have been a small farm on the north end of Mackside or Maxside Common, marching with Bonchester. It is mentioned four hundred years ago, and was tenanted by members of a family of the name of Dalgleish; who appear to have been as active as the Turnbulls in the freebooting line.

In 1510, Thomas Dalgleish in Braidhaugh produced a remission at the Justice Ayre, "for airt and pairt of the resetting of Simon Dalgleish and his accomplices for the theft of five horses from David Hoppringle of Tinnis, price of one of them xi merkis. Item, for the resetting of Walter Dalgleish, and his accomplices the time of the theft of xvi oxen from the said David furth of Bochlle (Bowhill)." Judgment was given "if not finding suerty, he should be hanged." At the same court, Thomas and William Dalgleish in Braidhaugh, produced a remission for "airt and pairt of the stouthreiff and hereshippes done upon the Laird of Cruikstone and his tenants, and stoutreiff from them of horses, cows, heiffers, and household guidis to the value of xl merkis. Item, for resetting of William Dalgleish in his thefts, and specially of 80 sheep from Thomas Murray, and for bringing in Black John Ruthledge and his accomplices to the burning of Branksome."

The surname of Dalgleish, which is still in the district, has been more honourably associated in recent times with John and William Dalgleish, late merchants in London, who were born at

Bankend on the Harwood estate, and after receiving their education at Hobkirk School, went to London about the commencement of the present century, where by industry and steady perseverance in trade, they acquired a large fortune. By their will, they bequeathed and mortified a sum of £1000, for the behoof of the widows and orphans of their native parish of Hobkirk, and also a sum of £100, for the purchasing of books and printing a catalogue for Hobkirk Library. They also contemplated the endowment of a school in their native parish, but as the laudable offer did not receive the countenance it deserved, the matter was allowed to rest.

At the Reformation, Braidhaugh was tenanted by a family of Turnbolls, whose valued rent was 5 merks. They appear to have remained the occupiers down to at least 1622, for in that year Willie Turnbull was in Braidhauche. At a Jedburgh Justiciary Court, held 28th August, 1622, we find "James Turnebull sone to Willie, of Braidhauche, indytit and accusit for airt and pairt of the thyfteous steilling, conceilling, ressett, and away takin of twenty-four scheip furth of the landis of Hairrlesyde, (Earlside), at severall tymes about Mertinmes last or yrby, perteneing to William Douglas, fear of Cavers and his tennenttis;" of which he was "clengit." Adie Turnbull of Hartshaugh, and Adie in Hartshaugh Mill, appeared at the court as cautioners for Turnbull, for which they were freed on producing him. Old Braidhaugh still remained in 1740, and was then tenanted by John Douglas, called a merchant. Probably he was a cadger, though that calling was not so prominent then as it has become now. The farm of Braidhaugh in recent times has been enlarged and improved out of the Community of Mackside; and a new dwelling house and onstead have been erected on a more convenient site. Old Braidhaugh was removed at the end of last century, for the construction of stone-dykes. Above the old steadin, was a good spring called Annie's Well, which still continues. Another spring which was formerly called the Foul Well was situated near the modern farm onstead, and has been recently disused, owing to the water being believed to have a deleterious effect on the occupants of the place. Good water is now supplied in pipes from Bonchester Hill. A bridle road from Over Bonchester to Hartshaugh Mill and the Kirk, can still be recognised along the face of the hill, especially on a clear morning in spring; the grass on it being earlier contrasts with the

surrounding bent. The road passed Braidhaugh and entered the mill plantation, where it is worn out into a deep "seugh," and is distinctly seen.

WESTWOOD.

Westwood was a small estate on the south-west slope of Bonchester hill. The site of the place is now unknown. The materials have all been removed within the last century, and the plough has long passed over the foundations. At the division of the Mackside Common in 1696, Westwood is mentioned as being near the old Jedburgh road to the upper part of the Rule valley, which at that period went by the south side of Bonchester hill, and entered the Rule at a place called Black-cleugh Mouth. The road was named in the old deed of Marching as the "hie gait Street to Jedburgh." It was by this road that the poet Burns, in 1787 travelled from Wells on Rule to Wauchope. On his route, he states that he traversed "the country to the top of Bochester, the scene of an old encampment." This he could easily do, as it is less than five minutes ride off the road.

Westwood was on the line of march of Prince Charlie and his Highlanders towards England; and a rising ground used once to be pointed out, but is now forgotten, called the Prince's Knowe, where he is said to have halted.

In 1642, Westwood belonged to a family of the Turnbells. At that period Thomas and Harie Turnbull were lairds of Westwood, who appear to have had separate properties; Thomas's valuation being 40 pounds Scots, and the valuation of Harie's only 10 pounds. The estates were in the parish of Abbotrule, and occupied the sunny side of the hill, where the land is good and the pasture sweet. In the criminal records of the period, the Turnbells of Westwood are an exception from many of the clan, for their name does not appear at any of the Justice Ayres. Their descendants cannot now be traced, and the lands that they held are now absorbed in the estates of Abbotrule and Wolfelee.

On the Death of Le Sieur de la Beauté, and the site of his Grave. By GEORGE MUIRHEAD, F.R.S.E.
[With two Plans].

IN the fifteenth and sixteenth centuries, the Homes were a very powerful family in Berwickshire, where they held great possessions, with many towers and fortalices, including those of Home, Wedderburn, Dunglass, Fast Castle, Renton, Kames, Coldingham, Ayton, Kimmerghame, Polwarth, Hutton, Blackadder, Broomhouse, and Manderston. They were descended from Cospatrick, Earl of Dunbar:—the Earl of Home being the head of the family, and the Homes of Wedderburn one of its leading branches.

In the troublous times of the Regent Albany, the Earl of Home, who held the important post of Warden of the Eastern Borders, and who had rendered himself obnoxious to the governor, was decoyed along with his brother William, to attend a parliament at Edinburgh, where they were seized and confined in separate prisons. The Earl was beheaded on 5th October 1516, and his brother William met with a like fate on the following day, their goods being confiscated, and their heads affixed to the most public places, as a mark of greater ignominy. When the Earl and his brother had thus been disposed of, Albany appointed a French knight named De la Bastie to the government of Lothian, with the Castle of Dunbar for his residence. He also made him Warden of the Eastern Borders, where the Homes chiefly resided, and likewise conferred on him the estate of Home, with the Castle of that name. This high handed and merciless procedure on the part of Albany gave the whole family of the Homes great offence, and more especially the Homes of Wedderburn, whose chief was nearly related to the Earl, and second only to him in rank and authority in the Merse. The head of the family of Wedderburn at this time was David Home—one of the “Seven Spears of Wedderburn” celebrated in Border song—whose father Sir David, along with their eldest brother George, had been killed while fighting for their king and country on “Flodden’s fatal field.”

David Home burned with a desire to revenge the death of his kinsman and the indignities which had been cast upon the family, and according to Godscroft, an opportunity of carrying out his

wish presented itself in the following manner :—" About this time " says that author—" Cockburn of Langton in the Merse, having died, left as guardians to his son, while under age, Cockburn of Clarkington in Lothian, and Chirnside of Nisbet in Merse, thus passing over his brother William, who had married David's sister, the widow of Swinton, who being an irritable man was offended at such exclusion, as contrary to the custom of the country, which conferred that office on the nearest relation. He therefore, being assisted by the brothers of David, who then lived with their widowed mother at Polwart in the neighbourhood, besieged the castle of Langton which the guardians had seized on. This appeared to De la Bastie, who then happened to be holding a court at Kelso, to be an improper act, and one which tended to diminish his authority ; he therefore sent letters to David requiring him to come to him. David refused to go, unless he received a passport to enable him to return when he pleased ; De la Bastie hesitated not ; he sent an ample passport, and as he was about to proceed to Dunbar, he recommended that he should meet him on his journey on the following day : so it was ; he had scarcely left the town a mile or two when Wedderburn met him. He was courteously received, and the first salutations were apparently peaceable and friendly ; by degrees they touched upon this disturbance. De la Bastie recommended that as a relation, he should withdraw his brothers from the undertaking, which was one that set a bad example, and not to be endured : that if they thought William had been treated unjustly, they should refer it to the laws, for by them and not by force they must act ; through them a way was open to justice. David in reply eagerly cleared himself, and declared that he had nothing to do with the matter ; that William indeed had sustained an injury in being deprived of the management of the estate of his nephew, a minor, contrary to the custom of the country ; he asserted that this had taken place not so much from the will of the father, which had become unsteady through the effect of disease, as from a trick of the guardians ; all this was however nothing to him ; neither William nor his brothers were under his control ; if they acted otherwise than was proper, let them be called and answer for it themselves. This irritated De la Bastie. who insisted that it was all his doing, as they would do whatever he commanded. He (Wedderburn) on the contrary alleged that they were their own masters, that

they dwelt with their mother and not with him, nor was he held by any act of theirs, nor required by any law to be bound for them. After long altercation, it at last came to this, that De la Bastie unable to restrain his rage, with threatening voice and countenance, said that he laid it upon him as a command to force them to raise the siege, or otherwise he himself would bring both him and them to their duty to their cost. To this David replied that he had come under a safeguard, that he now would return home, and then do whatever he pleased. Thus saying he halted: and remained in thought whilst the whole troop passed, since such threats had been uttered, he feared that should De la Bastie get safe to Dunbar, it would be easy for him to return with a body of men selected from the whole strength of the kingdom, besides he was enraged that a foreigner of unknown descent should so insult him and treat him like a servant. The death of his kinsman Alexander came to be remembered, and his place which was now held by himself perhaps unequal to the task, together with the ruin of so illustrious a family and the great dishonour of his country and race incurred by such servile obedience.

All these things being considered, and being inflamed by them rather than by former grief or recent rage, he determined that it was better to try the chance of the present opportunity; for if this were allowed to slip, it would in future be more difficult. They had by this time arrived at the heath which, lying to the north of the village of Fogo, and beyond, the river so named derives its appellation from thence, and is not above a mile and a half distant from the Castle of Langton, which William Cockburn and David's brothers were then closely besieging. Having sent a messenger to them to inform them of the matter, and direct them to join him in good time, he commanded his followers to mount their horses, the choicest of which each had brought with him, and to gallop about with much noise and tumult, as if they were about to attack with drawn swords. Such is the custom of the borderers, by which they either terrify their enemies, or put their courage to the proof, and if any advantageous opportunity occur, they make use of it; and while thus delaying and harrassing the enemy, they were giving warning to their friends to hasten to their assistance. They obeyed orders without delay, leaped from the small horses on which they rode, mounted the more select, drew their swords, and riding as near as possible with loud cries of 'Wedderburn,' endeavoured to

strike terror into the enemy. His followers did not amount to more than eighteen horsemen, being those only who had come with him, the matter being as yet unknown to his vassals, but who, he did not doubt, would speedily rush to the tumult. De la Bastie had five hundred men along with him, partly French, partly Scotch from Tiviotdale and the Merse, who were there either attending on their own affairs, or had come to do him honour; some young men from Lothian were also present. The Merse men, on seeing how matters stood, either openly joined Wedderburn, or slipped off home, while those of Tiviotdale gradually withdrew themselves. Mark Carr of Littledean alone hesitated, and having seized David's reins, intreated him to make no attempt on De la Bastie, as this would bring disgrace on him as being one of his attendants. But when he saw that David continued in his purpose, and threatened him with his sword to make him drop the reins, he let go, and without delay joined the party which was setting out for Tiviotdale. When De la Bastie saw this, he courteously called David to him, made excuses for speaking so roughly, blamed his anger, acknowledged that he had hastily and rashly spoken something which he was sorry for, and wished unsaid; still it was not of much consequence, and if David would cease from his wrath, they would agree about the rest. But in vain, for David considered that he had gone too far to retreat with safety, and began to upbraid him on account of the death of his relative. The Frenchman, when he saw that the Scotch quitted him; that he was left alone with his French followers, that the number of the enemy increased, and that no other hope remained, took to flight. He rode a very swift horse which had belonged to Alexander Home, and which had he been saddled in the Scotch manner, it is generally believed would have carried him off, but being overburdened with trappings of great weight, and unaccustomed to French furniture, he was unable to proceed at full speed. He set off however, and reached the ford, called "Cornifurd," halfway between Langton and Dunse before those who came from Langton could arrive to prevent his passage. He then continued his course through the middle of Dunse, the others following at some distance, whilst one Dickson, (or as others call him Trotter) one of David's pages, who had been left at home, but hearing the tumult, had leapt upon one of his master's horses, and galloped from Wedderburn, was close upon him, and threatened him at

every step with a drawn sword. De la Bastie with threats and orders to retire, defended himself actively, until he arrived at the stony ground which lies between Dunse and the village of Preston. There, whilst more intent upon his pursuer than on the road, his horse striking his foot against a stone, fell; then starting to his feet he defended himself very vigorously from the attacks of the young man, until John and Patrick Home, the brothers of David came up and slew him. His head was cut off and publicly exposed for sometime in Dunse, from whence it was intended to be carried to the Castle of Hume when it should be recaptured; his body was buried in the place where he fell, which was named after him, and the grave of De la Bastie is still [25th July, 1611] pointed out by the inhabitants. Historians relate that this slaughter took place on the 20th of September, 1517, yet the same writers narrate the death of Alexander on the 12th of October of the same year, through carelessness either of the transcribers or of the printers. We have laboured in vain, on this and similar points.”*

The same author in his poems, which were published at Paris in 1639, thus alludes to the above event:—

“ DAUID, AUUS.

· Externi iuga seruitii dum Darsius vrget
 Exterus ; idque sedens plebsque patresque fremunt
 Amissum decus imperii, vilescere gentem :
 Virtutem, priscos et cecidisse animos :
 Agmine turgentemque ; irasque, minasque vomentem.
 Ingressu paruâ, prælia magna manu :
 Et verti, et fudi, et vici : cædemque piaui
 Cæde illa, et manes, Humie magne, tuës
 Patria, quid debes mihi, quid domus Humia, vestri
 Arbitrii est ; non est dicere velle meum.

“Darsius erat nobilis Gallus ex Prouincia vulgo De la Basti, dictus : cuius consiliis Prorex Alexandrum Humium familiæ Principem, capite multnerat. Hunc postea David Humius Vvedderburnius ad vleiscendam Alexandri cædem interfecit, caputque abcissum supra Humium arcem, loco conspicuo, affixit. xii. Kal. Octob. 1517. Post ad. xiii. Cal. Aug. capita Alexandri et Guilliemi fratrum portæ inferiori Edinburgensi vbi affixa erant, detraxit. Vide Buch. lib. 14.”†

* MS. History of the Homes of Wedderburn, by David Hume of Godscroft. Dated 25th July, 1611.

† Davidis Humii Wedderburnensis Poemata omnia, Parisiis, 1639.

Upwards of three hundred years after the slaughter of the unfortunate French nobleman, we find some traditions regarding his death and burial still lingering in the neighbourhood. Writing in 1834, the Rev. Alexander Cuthbertson, minister of the parish of Edrom, says:—"The grave of Sir Anthony D'Arcy surnamed Le Sieur de la Beauté, is in a field on the estate of Broomhouse, in this parish, called De la Beauté's field. A cairn marks out the grave of D'Arcy."*

In the same year, the Rev. George Cunningham, in his report upon the adjoining parish of Dunse, thus refers to the subject of this paper:—"A deed of atrocity was perpetrated on Sir Anthony D'Arcy, also denominated the Chevalier de la Beauté, at a morass called from the name of the sufferer 'Battie's Bog,' on the line which divides the parish of Dunse from that of Edrom on the north-east. The Warden being worsted by the Homes, fled unattended towards Dunbar, pursued by the laird of Wedderburn. His horse being swamped in the bog, he continued his flight on foot, but was overtaken by his adversary, who cut off his head and carried it fastened to his saddle girth by the hair, in triumph to the Castle of Wedderburn."†

Two years later, Mr Carr, in his history of Coldingham Priory,‡ relates that "the spot where the unfortunate Warden, De la Beauté was slain by Sir David Home, is on the farm of Swallowdean—a mile or two east from Dunse, and is still distinguished by a moss-covered stone. It is called by the people in the neighbourhood—'Bawties grave.' His fate seems to have excited very general sympathy among the common people, and the tragic catastrophe is still narrated in their cottages, dressed up, of course, with many wonderful embellishments. The hoary peasant still tells to his grandchildren the tale which he heard in his boyhood, that a supernatural being appeared to the Chevalier, warning him as he valued his life, to avoid crossing the Corney-ford—a passage across a small streamlet that flows between Dunse and Langton; and his death is usually ascribed to his having neglected this friendly advice of the weird. The following effusion of the Border Muse, founded on this superstition, has been communicated to me by a friend:—

* New Statistical Account of Scotland, Vol. II. (Berwickshire), p. 269.

† New Statistical Account of Scotland, Vol. II. (Berwickshire), pp. 254, 255.

‡ Carr, History of Coldingham Priory, 1836, pp. 199-202.

I.

“ As Bawtie fled frae the Langton Tower
Wi’ his troop along the way,
By the Corney-Foord ane auld man stood,
And to him did Bawtie say :—

II.

‘ Pr’ythee tell unto me, thou weird auld man,
Whilk name this foord doth bear,’
‘ Tis the Corney-Foord,’ quoth the weird auld man,
‘ And thou’lt cross it alive nae mair.’—

III.

‘ Gin this be the Corney-Foord indeed,
The Lord’s grace bide wi’ me !
For I’ll ne’er get hame to mine ain dear land,
That lies sweet owre the sea :

IV.

‘ For I was tauld by a seer auld,
That when I did cross this foord,
My hours were numbered ilka ane,
And I’d fa’ aneath the sword.’

V.

‘ Then ride thee fast, thou knight sae braw,’
The auld man now did say,
‘ Thou’rt safe gin thou can’st reach Dunbar,
Afore the gloamin’s grey.’

VI.

Then Bawtie fled wi’ furious speed,
Away like the wintry wind ;
But the fiery Home, and his savage band,
Hard pressed on him behind.

VII.

‘ Mang the lang green broom on the Stany-Muir
Some fell, and some were slain ;
But Bawtie spurred on wi’ hot, hot speed,
The Lammermuir hills to gain.

VIII.

Syne doon the hill to the east o’ Dunse,
He rade right furiouslie,
Till near the house o’ auld Cramecrook
Deep lair’d in a bog was he.

IX.

Then fiery Home wi’ a shout and yell
Cried, ‘ Bawtie, I’ll hae ye now !’
As his steed sunk doon i’ the quiverin’ marsh,
Where the white bog reeds did grow.

X.

And the men o' the Merse around him ran,
Wi' their lang spears glentin' gay ;
Grim Wedderburn wi' fury wild
Rushed on to the bluidy fray.

XI.

The fray was sharp and soon was past,
And some faces there lay pale,
And the herd-boy stood on the hill aghast,
At the slaughterin' in the dale.

XII.

Their weapons guid were stained wi the bluid
O' the wairden and his men ;
Grim Home hewed off young Bawtie's head,
And left his bonk i' the fen !

XIII.

They stripped the knight o' his broidered vest,
Eke his helmet and his mail ;
Syne they shroudless laid him doon to his rest,
Where strife shall nae mair assail.

XIV.

Then light and gay the Homes returned,
Wi' brave Bawtie's head on a spear !
Whilk their chieftain tied to his saddle bow,
By its lang, lang flowing hair !

XV.

And they've set his head on the towerin' wa's
O' the castle o' Home sae high,
To moulder there i' the sun and wind,
Till mony lang years gae bye !

XVI.

The leddies o' France may wail and mourn,
May wail and mourn fu' sair,
For the bonny Bawtie's lang brown locks,
They'll ne'er see waving mair ! ”*

* A lady of the Wedderburn Family has informed me that the hair of *De la Beauté* was preserved in the “Comity Kist,” at Wedderburn Castle, until the early years of this century, when it was burned. She was told this by the person who destroyed the hair. Dr Anderson, of the Antiquarian Museum, Edinburgh, has suggested to me that the “Comity Kist” would be the chest in which were kept papers relating to the Committee of the shire of Berwick, which, in former times, attended to the duties of the present Commissioners of Supply.

Another version of the above ballad is given in the "Scottish Journal of Topography." 1848, Vol. II. p. 160 :—

1. "In Fifteen hundred and seventeen,
 After the Incarnation,
 Events befel which cast a slur
 Upon the Scottish nation.
2. The belted Home, a Baron bold,
 To Edinburgh trysted was ;
 Tried and condemned by Albany's might,
 A might above the laws.
3. His office of Warden they have given
 To Francis D'Arcy, knight ;
 The Merse Homes swore to be revenged,
 That they should have their right.
4. To Langton Castle D'Arcy went,
 A tumult there to quell ;
 When Wedderburn heard of this,
 His vassals all did call.
5. Now, words by blows succeeded were,
 And D'Arcy looked around,
 He saw he was no match for Home,
 And quickly left the ground.
6. By Pouterlaney they fled fast,
 And thro' the Corny sykes,
 And by the road that eastwards leads,
 To Duns' Grueldykes.
7. Tam Boulibacks did follow quick,
 As his good mare could stand,
 At Inglis' Walls she fell dead lame,
 While D'Arcy met his end.
8. Sir David Home, that stern old carle,
 Came up, and in a trice,
 As Beautie and his horse were bog'd,
 Did stab him twice or thrice.
9. Tam Trotter then cut off his head,
 And tied it by the hair,
 Upon Sir David's saddle bow ;
 To Dunse they did repair.
10. And when they came to that fair town,
 The people cried God speed !
 Upon the Tolbuith's highest part
 They placed Sir D'Arcy's head.

11. To Castle Hume they've ta'en the head,
And fix't it on the wall,
Where it remained many a day
Till it in pieces fell.
12. Sir De la Beantie's headless corpse
They put into a grave,
On Broomhouse banks, without a mass
Or prayer his soul to save! ”*

Dr George Henderson of Chirnside, in a M.S. volume entitled “Excursions in Berwickshire,” written about the time when the Railway from Reston to Duns was made, states that “the morass in which D’Arcy was bogged and slain more than 300 years ago, is now all drained and cultivated. This was effected about 1810, and the public road from Duns to Broomhouse made through it.” He adds “the stone which was placed on his grave will now be sought for in vain.”

In the summer of 1880, while on occasional visits to my friend Mr Clapham, at Broomhouse, I made some enquiries regarding De la Beauté’s grave, and found that there was a field on the Farm of Swallowdean, called the “De la Bate,” but I could get no information as to the exact site of the grave, although I carefully examined the ground in the “De la Bate” field and its vicinity, and made numerous enquiries amongst old residents in the neighbourhood. An old man who lived at Ladywell told me that he remembered of a cairn of stones having been removed from the “De la Bate” field, many years ago, by a person who had contracted to supply stones for repairing the parish roads.

Dr Stuart of Chirnside, to whom I mentioned the subject of my enquiry, has told me that he has some recollection of seeing the cairn referred to, shortly after he came to reside in the county, in 1848.

In 1886, I had some correspondence with Captain Logan Home,

*The Editor of the “Scottish Journal of Topography” says in a note at p. 256, vol. ii.—“The correspondent to whom we are indebted for this interesting relic, printed in the Journal of 6th May last, informs us that the verses were taken from the recital of William Gillies, Skinner in Dunse, about fifty years ago. Gillies was nearly eighty when he died. He had the verses from his grandfather.” [Mr Charles Watson, Duns, writes to me: “Duns, 15th Nov. 1888: My Dear Sir,—I copied the above ballad from a MS. which belonged to my father, and sent it to the Journal along with a number of other papers. Yours truly—CHARLES WATSON.”]

of Broomhouse, regarding the site of the grave, and he was so good as to write to me as follows:—

21, The Avenue, Colchester, 17th May, 1886.

My Dear Sir,—I have not any old family papers here with me, all I have being locked up at Broomhouse, or in Edinburgh. I have written to my mother regarding any old diaries or notes of which she may remember, and also about De la Beauté's grave. I enclose a copy of an inscription evidently intended to be placed on a pillar marking his grave. This memorandum I found in my grand uncle, General Home's handwriting. There is no pillar in "De la Bat's" field. The only one near, is the one near the avenue at the top of the banks, at Broomhouse. This pillar, however, I have always heard, marks General Home's favourite spot, and here he wished to be buried I believe, and as far as I know, it has nothing to do with De la Beauté. At the end of "De la Bat's" field, there was the morass in which his horse stuck fast. I remember the last bit of it being drained about 18 or 20 years ago. I also remember, though not distinctly, a heap of stones near a tree standing about the middle of the field. This may have been the Cairn. The only person I know who would remember the Cairn, is Mr Brown, who was tenant of Swallowdean, the farm on which "De la Bat's" field is situate. He lives now at Auchencraw, and is a very old man, but would no doubt be able to tell you the exact spot.

I remain, yours truly,

(Signed) G. LOGAN HOME.

COPY INSCRIPTION.

"The Pillar above marks the grave of D' Arcie, Sieur de la Beauté, who had marched from Dunbar with some French troops to quell disputes on the borders, having been appointed Warden, (though a foreigner), to the great disgust of the Borderers. He found Home of Wedderburn, with his clan and other friends, in arms before Langton Castle, in arrangement of a quarrel between the Laird of Langton and his Uncle. Wedderburn accused D' Arcie of having been accessory to the false charge against his chief Lord Home; angry words produced blows—a battle ensued—those Mersemen who had joined D' Arcie on his march, came over to their countrymen. The French were defeated. D' Arcie flying towards Dunbar, bogged his horse in this morass; being unable to extricate him, he dismounted and fled on foot, of course, was soon overtaken, and fell by the hand of John Home, Wedderburn's brother. Wedderburn ordered the head to be struck off, which, attached to his saddle, he carried to Home Castle and fixed on the battlements.

"Patrick Home, the Laird of Broomhouse, who was present, ordered the body to be buried, and a cairn to be raised over the grave. This transaction occurred in the year 1517. The inditer of this testimonial, to the patriotic spirit of his brave countrymen, has, during his boyhood, laid many a stone on "De la Bat's" grave.

R. I. P."

On the 14th June following, Captain Logan Home wrote to me :—

"I hope you will succeed in finding out from old Mr Brown, at Auchen-craw, the exact spot where De la Beauté's cairn was. If the spot can be found, I will be very glad to mark it, by placing a stone or pillar there. Stone coffins with skeletons were found in the field to the N.W. of 'De la Bat's,' but the skeletons all had heads on them. Several skeletons were also found under the old oak tree at Broomhouse."

Having occasion to visit the farm of Sunnyside, near Auchen-craw, on the 9th of February, 1887, I met there Mr Walter Brown, the formertenant of Swallowdean, and his brother, the late Mr John Brown. They informed me, that when they became tenants of Swallowdean, in 1834, a very deep bog extended along the lower part of the "De la Bate," or "Battie's Bog" field, and that, on the northern edge of this morass, there stood a cairn of stones until about 1850, when the bog was drained, and the cairn removed. At my request, they marked upon the 25 inch Ordnance plan of the parish of Edrom, the site of the cairn.

Mr John Williamson, Bookseller, Duns, who is interested in antiquarian matters connected with that neighbourhood, having mentioned to me sometime afterwards, that he and the late Mr William Stevenson, accountant, Duns, had given some attention to the site of the grave of De la Beauté at the time when the bog was finally drained, I visited the "De la Bate" field with Mr Walter Brown and Mr Williamson, on the 16th of July, 1888, when they pointed out on the ground, the spot where the cairn formerly stood. This spot is shown on the two accompanying sketches of the "De la Bate" field, taken respectively from the 6 inch and 25 inch ordnance plans of the district. It coincides exactly with the site marked on the 25 inch plan in February, 1887, by Messrs Walter and John Brown at Sunnyside.

Alnmouth Marine Algæ. By ANDREW AMORY, Alnwick.

SINCE my last communication, I have been able to add the following species to my Alnmouth List, my thanks being due to Edward A. L. Batters, Esq., F.L.S., for his aid in their identification.

<i>Conferva ærea.</i>	<i>Myriotrichia filiformis.</i>
<i>Calothrix confervicola.</i>	<i>Melobesia polymorpha.</i>
<i>Chorda lomentaria.</i>	———— <i>laminariæ.</i>
<i>Sphacelaria radicans.</i>	<i>Petrocelis Henedyi.</i>
<i>Desmarestia ligulata.</i>	<i>Delesseria hypoglossum.</i>
<i>Ectocarpus fasciculatus.</i>	<i>Nitophyllum punctatum.</i>

Between the Aln and Birling Car are some flat-lying rocks, which at times are buried in sand. When they are exposed, *C. cerea* may be found plentifully on the sand-covered rocky bottoms of the stretch of shallow pools nearest high water mark, growing in tufts and communities of tufts, unlike *C. melagonium*, which is found at various parts of the bay, but always near low water mark, and only a few scattered fronds in one place. My specimens of *C. cerea* were gathered in good condition in October; and the same locality at the same date furnished a few plants of the small *Sphacelariu radicans* growing in company with *Callithamnion floridulum*. This is also our locality for *Gracilaria confervoides*, where it grows abundantly in strong bushy tufts, fruiting in September. Cast up on the south sands near this place a large *Himanthalia lorea* brought ashore my first specimens of *Ectocarpus fasciculatus*, with which it was covered.

August 1st, 1887.—*Myrotrichia filiformis* and *Calothrix confervicola* on decayed *Ceramium rubrum*. *M. filiformis* also growing in company with *M. claviformis* on *Chorda lomentaria*; and a beautiful diminutive *Chylocladia clavellosa* from a rock-pool near low water mark, the only one I have seen in such a position. In my first list I gave *C. clavellosa* as rather rare at Alnmouth, as in several years I had only seen a few cast up; but this date upset that conclusion, as hundreds were floating in with the tide—some with tetraspores, others with capsular fruit: flat fern-like specimens to luxuriantly bushy ones. I have given *Desmarestia ligulata* on the strength of four pieces—the largest a foot in length, picked up at odd times at the north end of Alnmouth rocks in front of Foxton, which is a favourite hunting-ground for cast-up rarities. *D. aculeata* is quite common, and entire plants of *D. viridis* are met with occasionally; but having found only broken parts of *D. ligulata*, I conjecture it may come from a distance.

Delesseria hypoglossum, cast up, north sands, autumn, very rare. I have seen but four specimens. *Nitophyllum punctatum*, also rare—two specimens cast up, Foxton, one with tetraspores, the other with capsular fruit, October 1887.

Petrocelis Henedyi, a closely adhering smooth skin-like growth—frequent on *Laminaria* stems. *Melobesia laminariæ*, the chalky parasite of the stems of *L. digitata*, commoner still; and *M. polymorpha*, like a stony lichen, very common on the rocks about Foxton. These additions bring my list up to the very respectable figure of 113 species, although yet far from complete.

List of Fungi (Hymenomycetes) found mostly in the neighbourhood of Roxburgh in 1887 and hitherto unrecorded from the district of the Club. By the REV. DAVID PAUL, M.A., Roxburgh.

1. AGARICUS (*Tricholoma*) INAMGENUS, FR. In a wood at Roxburgh, September; has the disgusting smell of *Ag. sulphureus*.
2. AG. (*Collybia*) CIRRHATUS, SCHUM. At Sunlaws, September, growing very thickly over decayed leaves and blackened Fungi. In the same group they vary greatly in size, some being extremely minute and others nearly half-inch broad. Akin to *Ag. tuberosus*, but without the tuber.
3. AG. (*Volvaria*) SPECIOSUS, FR. On a heap of decayed stems of Jerusalem Artichoke at Sunlaws, September. This is a handsome and rare Fungus; I have only met with it once. All the *Volvaria* indeed are rare, and I have not seen any of them except this one and *gloiocephalus* (once).
4. AG. (*Pholiota*) DURUS, BOLT. In Mr Boyd's garden at Faldonside, July. An uncommon Fungus here.
5. AG. (*Flammula*) CARBONARIUS, FR. Rutherford; Bowhill, Sept., Oct. On bare ground among the ashes of burnt wood. Scarce at Rutherford; in abundance at Bowhill.
6. CORTINARIUS ALBO-VIOLEACEUS, FR. In a wood at Rutherford, September; not common.
7. GOMPHIDIUS GRACILIS, B. and BR. In fir-wood at Sunlaws, September; smaller than the others, and I think, uncommon here.
8. LACTARIUS PALLIDUS, FR. Rutherford, under Beech, Sept.
9. FISTULINA HEPATICA, FR. At the root of an oak tree, Bowhill, Sept. This is a rare Fungus here, though in some parts of England it is very common. It is the "Beef-steak Fungus," long known as edible, and said to be very nourishing when cooked.

On the Classification of the Carboniferous Limestone Series; Northumbrian Type. By HUGH MILLER, F.R.S.E., F.G.S., of H.M. Geological Survey.

[*From the Report of the British Association for the Advancement of Science, 1887. Communicated by the Author.*]

It is now twenty years since the late GEORGE TATE, of Alnwick, published his completed classification of the Carboniferous Limestone Series of North Northumberland. For more than half that period it has been set aside as of a merely local value. It will be the endeavour of this paper to claim for it its true place.

Tate's classification may be summarised as in the following table:—

CARBONIFEROUS LIMESTONE SERIES OF NORTH NORTHUMBERLAND :
TATE'S CLASSIFICATION, 1856-1868.

Upper or Calcareous group:—From the base of the Millstone Grit to the Dun Limestone, 'the lowest limestone of any value.' Good workable limestones, interstratified among alternations of sandstone, shale, and coal; large number of marine organisms in the calcareous strata. Thickness about 1,700 feet.

Lower or Carbonaceous group:—From the base of the Dun Limestone to the top of the Tuedian group. Distinguished by the number, thickness, and quality of its coal seams; limestones thin and generally impure; marine organisms in fewer numbers than in the calcareous group. Thickness, 900 feet.

Tuedian group:—The beds intermediate between the productal and enerinital limestones of the county and the Upper Old Red Sandstone. Distinguished by coloured shales, by thin, argillaceous and cherty or magnesian limestones, and by the rarity of enerinites and Brachiopoda. Some Stigmarian layers, but no beds of coal. Thickness about 1,000 feet. In one of his papers Tate distinguishes a series of 'Tuedian grits' forming the upper part of the group.

[*Upper Old Red Sandstone*. Local conglomerates, 'more connected with the Carboniferous than with the Devonian.'
No *Stigmaria*.]

In 1875, Tate's classification of the upper divisions of the series was set aside by Professor Lebour in favour of an arrangement more 'natural and convenient.' Professor Lebour abolished the distinction between the *Calcareous* and *Carbonaceous* groups, and threw them, along with some of the Tuedian grits, into a single large series, to which he applied the term *Bernician*. This arrangement is based on the assumption that Tate's two divisions either do not exist in nature or do not persist throughout the county.

CARBONIFEROUS LIMESTONE SERIES IN NORTHUMBERLAND :
LEBOUR'S CLASSIFICATION, 1875-1886.

Bernician..... A large group—which 'cannot be divided in any natural manner'—of limestones, grits and sandstones, shales, and coals; lower limit, 'a variable one,' not keeping to any one horizon; thickness, in North Northumberland, 2,600 feet (after Tate); in Mid Northumberland, a maximum of 'at least 8,000 feet' (after Westgarth Foster).

Tuedian..... As in Tate's classification, but without definition at its upper limit.

Basement Conglomerates Local.

It has never been contended, the author believes, that Tate's prior classification is not applicable to North Northumberland. And it is now, as a result of the labours of the Geological Survey, found to be equally applicable to South Northumberland, and to the whole of what deserves to be distinguished as the *North-umbrian Type* of the Carboniferous Limestone series, in contrast with the Yorkshire type and Scottish type.

The following table sets forth the classification as further amplified and defined:—

CARBONIFEROUS LIMESTONE SERIES—NORTHUMBRIAN TYPE
(Northumberland, East Cumberland, and Liddisdale.)

Upper Limestone Series.	<i>Felltop or Upper Calcareous Division:—</i>		Feet
	<i>From the Millstone Grit to the zone of the Great Limestone. Sandstones and shales; one or more beds of marine limestone, including the Felltop Limestone; some coals;</i>		350-1,200
	<i>Calcareous Division:—From the great Limestone to the bottom of the Dun or Redesdale Limestone. Many beds of good marine limestone; sandstones and shales; coals;</i>		1,300-2,500
Lower Limestone Series.	<i>Carbonaceous Division (Scremerston Beds of North Northumberland):—From the Dun or Redesdale Limestone to Tate's 'Tuedian Grits.' Strata prevalently carbonaceous; limestones chiefly thin, many of them containing vegetable matter; coals;</i>		800-2,500
	<i>Tuedian Division:—Upper Tuedian or Fell Sandstone Group, the 'Tuedian Grits' of Tate:—From the Carbonaceous Group to the Cement-Limestones. Great belt of massive grits (Tweedmouth, Chillingham, the Simonside and Harbottle Hills, the Peel, and Bewcastle Fells). Shales greenish and reddish as well as carbonaceous-grey; coals rare, thin, or absent;</i>		500-1,600
	<i>Lower Tuedian or Cement-Limestone Group: From the base of the grits downwards. Cement-stone bands passing into limestones (Rothbury, Bewcastle); coals very rare; generally some coloration of the shales and sandstones;</i>		500-1,500
	<i>Basement Conglomerates (Upper Old Red Sandstone); local;</i>		—

Tate's admirable classification, in conclusion, presents us with well-defined types of strata, bounded by lines as good probably as from the complications of the structure (faults, obscurities, &c.) could be expected, and so distinct as generally to be recognisable at a glance by the practised eye. His group-names, if not high-sounding, are at least sufficiently expressive, and have every claim to general adoption.

Brenkburne Priory, Ministers' Account of 1535-6; Translated. Communicated by the late C. H. CADOGAN, Esq.

THE Account of Thos. Johnson, Bailiff and collector of the rents and Farms there, from the feast of St. Michael the Archangel in the 27th year of the reign of the King that now is, Henry the 8th, unto the same feast of St. Michael the Archangel then next ensuing in the 28th year of the reign of the same Lord the King. To wit, for one whole year as below appeareth.

ARREARS. None because it is the first year of his office.

	£	s.	d.
farm of the Demesne lands with the Grange late in the Hands of the Monastery.	}	But he renders an Acct of 7 4 4	
late Monastery there, with the Edifices,		for the farm of the Scite of the	
demesne lands, Granges and two Orchards Gardens, and with a water corn Mill and Tan House situate near the said Monastery, and 15 Closes of arable land; Meadow feeding and pastures containing among themselves		late Monastery there, with the Edifices,	
acres, occupied in the hands of the late Monastery, as particularly appears in the Book of Survey of the same, by virtue of the Commission of the Lord the King that now is, Henry 8th, taken the first day of July in the 28th year of the reign of the aforesaid King; by Lionel Gray, Robert Collingwood, William Grene and James Made, and remaining in the possession of the Court of Augmentation of the Crown of the sd Lord the King, so 'demised to Cuthbert Carnaby, for the term of 21 years by In- denture, dated the day of the month of in the year of the reign of the King aforesaid. To have and to hold all and singular the premises with the appurtenances except the Great Trees and woods of and upon the premises growing and being, etc. to the aforesaid Cuthbert and his assigns from the feast of St. Michael the Archangel at the end of this Acct, unto the term aforesaid, rendering therefore yearly to the aforesaid Lord the King, his heirs and successors as above, payable at the feast of the Annunciation of the blessed Virgin Mary and St. Michael the Arch- angel by equal portions, or within a month after either of the feasts before mentioned, during the term aforesaid, as appears by letters missive of the Chancellor and others of the Court of Augmentations of the Crown of the Lord the King to his Ministers, in that behalf directed and remaining in the possession of the auditor this year, not being part of his term.			

	£	s.	d.
Sum	7	4	4
	£	s.	d.

Rents and farms in divers Townships.	}	And for 6 3 4		for the rent and farms of 6 Tenements on the Water of Cockett, and 6 Tenements in divers places near the said Water, with the lands, Meadows feedings and pastures to the same appertaining, at the will of the Lord the King, per ann., as particularly appears by the Book of Survey aforesaid, payable at the terms of Pentecost and Saint Martin by equal portions—and for 30s 8d for the rents and farms of two Tenements and
		of 6		

one cottage in Whittingham with the Lands, Meadows and pastures to the same appertaining at the will of the Lord the King per annum, payable at the terms aforesaid by equal portions, and for 8s for the farm of one Tenement with the Appurtenances in the Township of Barton in the Tenure of James Huntley at the will of the Lord the King, payable at the same Terms per annum. And for 28s 4d for the farm of 3 Tenements at the will of the Lord the King in Casefeld [Cawseyfield where St. Cuthberts' chapel stood ?] and Helme per annum, payable at the same terms equally. And for £5 17s 8d for the farm of 12 Tenements and 2 Cottages in the Town of Great Framlington at the will of the Lord the King there per annum, payable at the Terms aforesaid, as appears by the Book of Survey aforesaid; and for 14s for the farm of one Tenement with certain closes and appurts. called Snokebank in the tenure of John Alder at the will of the Lord the King per ann., payable at the same Terms; and for 26s 8d for the farm of 2 Tenements called Newmorehouse in the Tenure of 2 Tenants at the will of the Lord the King per ann., payable at the same Terms. And for £3 11s 4d for the farm of 6 Tenements and 2 Cottages in Framlington parva [Low Framlington] at the will of the Lord the King with 16d for the free rent of Thos. Rookby and Richard Alder for their lands there per annum, payable at the same Terms. And for £1 13s 8d for the farm in 7 Tenements in Felton Magna, at the will of the Lord the King, with 16d for the free rent of Thos. Rookby, yearly issuing out of their lands there called Blakehouse Hall, payable at the same terms; and for 26s 8d for the farm of 2 Tenements in the Township of Grenez, [Greens] with the Appurts. in the tenure of 2 Tenants at the will of the Lord the King, and payable at the same Terms; and for £7 for the farm of 2 Tenements with Curtilages and Gardens to the same appertaining, and with 54 acres of arable land and pasture with the Appurts. in the town of Hertley, in the tenure of John de la vale, Knt., payable at the same Terms; and for 20s for the farm of one Tenement with the Appurts. in Lynehurst, in the tenure of Horne at the will of the Lord the King per annum, payable at the same Terms as appears by the said Survey; and for 10s for the farm of 1 Tenement in Eshot with the Appurts. in the tenure of James Horne at the will of the Lord the King per annum, payable at the same Terms; and for 13s 4d for the farm of one Tenement with the Appurts. in the Town of Hertford Bridge, in the tenure of John Hall of Otterburne per annum, payable at the same Terms at the will of the Lord the King there, payable at the same terms. And for 40s for the farm of divers lands, meadows and pastures lying in the Town and fields of Nethertrughett [Nether Trewhit] as occupied by Edward Galon per annum, payable at the same Terms; and for 13s 4d for the farm of one Tenement in Bokenfeld with the Appurts., in the tenure of Jas. Carre, at the will of the Lord the King per annum, as appears by the Book of Survey afsd., payable at the same Terms. And for 10s for the farm of one Tenement with the lands, feedings, meadows, pastures to the same appertaining lying in the Town of Tesson parva [Little Tosson] near Reddesdale, in the tenure of William Hornell per annum, payable at the same Terms, as appears by the said Survey; and for 31s for the farm of 1 Tenement with the Appurts.

in Rile, in the tenure of Roger Swanne, at the will of the Lord the King per annum, payable at the said Terms. And for 13s 4d for the farm of 1 Tenement with the Appurts. in Brenklawe in the tenure of the Relict of Roger Swynburne, at the will of the Lord the King per annum, payable at the same terms. And for 40s for the farm of 1 place called Felton parva [Old Felton] with the lands, meadows and pastures to the same appertaining, formerly in the tenure of 4 Husbandry Tenants, each of them having one carucate of land, now in the tenure of Jas. Carre, by Indenture, as it is asserted, payable at the same Terms, as appears by the Book of Survey aforesd. And for 13s 4d for the farm of one Tenement in Cowpon with the Appurts. in the tenure of Thos. Saunderson, at the will of the Lord the King, payable at the same Terms, per annum. And for 7s. for the farm of 1 Tenement in Thruston with the Appurts., in the tenure of Thos. Hynde, at the will of the Lord the King per annum, payable at the same Terms, as in the Book of the said Survey more fully appears. And for 16s 8d for the farm of 2 Tenements in the Town of Newcastle upon Tyne per annum, payable at the same Terms, as appears by the Book of Survey examined and proved. And for 5s for the farm of 1 Tenement in Gateside [Gateshead] in the tenure of William Clerke, at the will of the Lord the King per ann., payable at the same Terms, as appears in the same Book of Survey. And for £1 6s 8d for the farm of 1 Tenement with the Appurts. in the Town of Woden, in the tenure of John Wright, at the will of the Lord the King per ann., payable at the same Terms. And for 12s for the farm of 1 Tenemt. in Whigham [Ulgham] with the Appurts., in the tenure of Robt. Hardyng, at the will of the Lord the King, payable at the same terms, as appears by the Book of Survey aforesaid; and for 3s 4d of free rent issuing out of the Lordship of Capheton per ann., payable at the same Terms equally. For 2s lately received of rent yearly issuing out of the Monastery of Newmynster; here he doth not answer, because it is now in the hands of the Lord the King. But he answereth for 8s for the farm of 1 Tenement with the Appurts. in Highworth [Eworth or Ewart] in Glendale, in the tenure of John Arkehill, at the will of the Lord the King per annum, payable at the same Terms, as appears by the Book of the said Survey; and for 4s for the farm of one Tenement with certain lands in Newbigging, in the tenure of John Downet, at the will of the Lord the King per ann., payable at the same Terms. And for 6s for the farm of three Cottages at the Westhugh per annum, at the will of the Lord the King, payable at the same Terms. For 10s for the farm of 3 Cottages lying in Midfurth [Mitford] he doth not answer, because they lie waste, and nothing therefrom could be levied towards the payment of the free farm of the same called Ekemeale. But he answers for 5s for the farm of a Tenement called Kemersfield with the Appurts. there, in the tenure of Geo. Forest, at the will of the Lord the King per annum, payable at the same Terms. And for 6s 8d for the farm of 1 Tenement with the Appurts. in Weldendike, in the tenure of the Relict of Thos. Bell, at the will of the Lord the King, per ann., payable at the same terms. For 15s 8d for the rents and farms of 5 Burgages lying in the Town of Alnwick, at the

will of the Lord the King per annum, payable at the same Terms, as appears by the Book of Survey aforesaid. For any profit coming or arising from the Issues of divers lands and Tenements lying in Rile, late £1 6s 8d, now occupied by Alex. Heron of Meldon, by what right unknown, yet here estimated to be in Mortgage to the Council of the Lord the King, as in the Survey aforesaid more fully appears.

	£	s.	d.
Sum	49	18	8

Issues to the } And for £15 for the farm or Issues of the Rectory of
Spiritualites. } Horseley, to wit in Tythes of Grain of the Township
of Horseley, and with the Tythes of Wool, Lamb, and
small Tythes; and the tything of Grain in Stannynghton and Stanniston-
shelz, with the like small Tythes there, and also the Tythes of Watersides
lying on the South part of the Watter of Cockett, except the Tythes of
Grain and Hay of divers Tenements there, viz. of the Tenement of John
Davy, Richard Atquson, John Horsley, Widow Horsley and Richard Turner,
whose Tythings are charged with their farms by ancient Custom, so by
the Council of the Lord the King demised to Cuthbert Horseley, as appears
by letters missive remaining in the possession of the auditor, payable at
the feasts of the annunciation of the Blessed Virgin Mary, and St Michael
the Archangel, by equal portions. And for £21 6s 8d for the farm of the
Rectory of Felton with the Appurtenances, viz. the Tythes of Grain and
Hay of Swarland, fframlyngton, Nether fframlyngton, Aketon, [Acton],
Glavritlez [Glantlees], Owsegares, [Overgares], ffrith, Greenez, [Greens],
Heugh, Catfield, Strothaugh, [Shothough ?], Elgeanys [?] Moiety of
Sheledik Wnytwyk, [Shielykes Intake], Cotefield, Helmechill, Lynehurste
and Snokebanke, with the Tythes of Grain of Bokenfeld, and besides the
Tythe of Grain and Hay of Old Felton, Tolmanhaugh, and Vicarhaugh
lying in the fields of Thirston, and besides the Tythes of Kirkefeld, with
the Mansion of the Vicarage there, and 4 Cott. to the same Vicarage ap-
pertaining so granted by the Council of the Lord the King to Anthony
Ponye to farm, as appears by letters missive remaining with the auditor,
to be paid at the feasts of St Michl. the Archangel and the annunciation
of the Blessed Virgin Mary equally.

	£	s.	d.
Sum	36	6	8

	£	s.	d.
Sum total of the Rect.	93	9	8

Discharge of } of which the same Bailiff accompts in the discharge of
Rent. } the rent and farm of the Demesne lands together
with the scite of the late Monastery there, with the Gardens, Orchards,
Closes, Mills and other premises, with the Appurts. being in the hands of
the late Priory, above charged at £7 4s 8d per annum, because all and
singular the premises with the Appurts. were occupied by the said late
Prior and Convent from the feast of St Michael the Archangel in the 27th
year of the reign of the aforesaid Lord the King, untill the 4th day of
february then next ensuing in the aforesaid year, on which day the said
Priory, together with the lands, Tenements and possessions whatsoever to

the same appertaining came to the hands of the Lord the King by virtue of a certain Act in the Parliament of the said Lord the King at London the 3rd day of November in the 21st year of his reign, begun and afterwards adjourned to Westminster, and by divers prorogations until and to the aforesaid 4th day of february in the 27th year of his reign, continued and there held, as in the Act before mentioned more fully is contained ; (viz) in the allowance of the like rent for the term of St Martin in Winter in the 27th year, happening within the time of this Acct., £3 12s 2d ; and in discharge of the rent of the Tenants of the Lord the King in divers Townships above in parcels, charged at £49 18s 4d per ann., because the Moiety of the rents and farms before mentioned at the feast of St Martin in the Winter, in the aforesaid 27th year, happening within the time of this Acct., the aforesaid Prior and Convent in their proper right received and had, viz., in the like allowance due before the said 4th day of february in the 27th year of the reign of the Lord the King that now is, Henry the 8th, £24 19s 2d. And in the discharge of the rent of the Issues of the Rectory of Horsley and Felton above charged by themselves, under the title of the Issues of the Spiritualities at £36 6s 8d per annum, because the aforesaid Prior and Convent received and expended all and singular the Issues and profits of the said Rectorie of the Grain coming and arising in the autumn in the 28th year of the reign of the Lord the King that now is, Henry 8th, viz. in the like allowance this year—during the whole time of this account £36 6s 8d.

	£	s.	d.
Sum	64	18	0

Payment of) And in the rent paid by the Lord the King to the
Rent.) Sheriff of Northumberland issuing out of the Lordship
of Brenkburn at 8s 3d per ann., viz. in the like allowance during the time
of this Acct., nothing because paid by the Prior. And in the rent paid to
the Bishop of Durham issuing out of the Church of Felton at 6s 8d per
ann., viz. to the allowance of the same this year—nothing for the reason
aforesd. And in money yearly paid to the Archdeacon of Northumber-
land issuing out of the churches of Horsley and Felton for Sinods and
Proxies, 2s per ann., viz. in the like allowance during the time aforesaid,
nothing for the reason before mentd. ; and in rent paid to the sacrist
at Durham issuing out of the church at Horsley at 3s 4d per ann., viz. in
the like allowance this year—nothing for the reasons aforesd. And in
the rent paid to the Prior of Tinmouth, issuing out of the lands at Hertley
[Hartley] at 14d per ann., viz. in the like allowance this year, nothing for
the above reason.

Sum	Nothing.
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Decay of) And in decay of rent in Capheton above charged at 3s 4d
Rent.) per ann—because the said Town lies waste, and so in
allowance this year, nothing for the above reason.

Sum	Nothing.
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Annual pensions.) And in an annual pension paid to the Heirs of John
Cartyngton by Grant of the late Priory and Convent there, issuing as well
from all those lands and Tenements lying at framlyngton magna and

framlyngton parva, which the said Prior and Convent formerly had by grant of John Cartyngton, as of all those Lands and Tenemts of the same late Prior and Convent, which they have there of their ancient possession, to be paid at the ffeasts of Pentecost and St Martin, in equally, as in the Deed of the same Prior and Convent sealed with their Common Seal in the 5th year of the reign of King Henry the Seventh at 40s per annum, viz. in the like allowance during the time of this Acct.—nothing, paid by the Prior. And in the pension or salary of Thomas Querriot, Chaplain and Curate within the Chapel of the late Priory there at £5 6s 8d per ann., viz. in the like allowance this year—nothing for the reason afsd.; and in the annual pension or salary of John Gray, Chaplain and Curate within the chapel of the late Priory there at £5 6s 8d per ann., viz. in the same allowance this year, nothing for the aforesaid reason.

Sum Nothing.

Fees and wages.) And in the fee of Thos. Johnson, Bailiff there exercising his office at £2 13s 4s per ann., in the same allowance as hath been allowed in the Accounts preceding this year—nothing because paid by Prior. And in the fee of John Beadnell, Clerk, Curate there at 6s 8d per ann., viz. in the same allowance this year—nothing for the cause aforesaid. And in the fee of Geo. ffenwick, Keeper of the wood of the Priory aforesaid at 6s 8d per ann., viz. in the same allowance during the time of this Acct. nothing for the same reason.

Sum Nothing.

Payment of Money.) And in money charged in the Acct. of William Grene Recr. of the Issues of the farm of the Demesne lands there with the Scite of the aforesaid late Priory, together with the Buildings, Closes, and Mills to the same appertaining by the same late Prior and Convent lately occupied from the aforesd 4th day of february, in the 27th year, on which day the said Priory with its possessions came into the hand of the Lord [the King], unto the ffeast of St Michael the Archangel then next ensuing, in the end of this Acct. to wit, for the term of Pentecost happening within the time of this Acct.

£ s. d.
3 12 2

And in the like money charged in the Acct of the said Receiver of the rents and farms of Tenants in divers Townships from the aforesaid 4th day of february until the close of the Acct. to wit, for the term afsd. Sum
£28 11s. 4d.

£ s. d.
24 19 2

£ s. d.
Sum 28 11 4

Sum of the allowances and payments £93 9s 8d, which sum corresponds with the sum of the Rect. before mentd.

On the Dovrefjeld, Norway. BY GEORGE BIRD, Edinburgh.

OF the hundreds of tourists who visit Norway every summer to explore its valleys and fjords and wonderful rock scenery, and to enjoy the change and rest which these afford, but few comparatively find their way to the Dovrefjeld. And yet to the traveller there are not many places where a sojourn of a week or two would so well repay the additional time required to get there. The Dovrefjeld range comprehends in its area some of the loftiest mountains in Norway, and can be reached in two days from Christiania, or in the same time from Trondhjem. Journeying from Christiania, a day in the train will take you to Lille-Elvdal, the point where you leave the railway, and where it is necessary to stay overnight, good accommodation being provided in a clean and comfortable hotel. You afterwards proceed by cariole or other conveyance. The road for a long distance follows the river through a picturesque and wild country, the valley on either side being bounded by mountains, and the scenery generally has a great resemblance to many parts of our own Highlands. One is struck with the immense quantity of white sandy soil in these high regions—indeed it is almost entirely sand in many places; and sometimes you pass a huge cliff of sand of a greyish colour, of great height, laid bare by the river, and stretching along its margin. The river, at first a broad and majestic stream, gradually narrows until hemmed in by the mountains, becoming more rapid and turbulent, and altering in its character with the changing surroundings. The hillsides and base of the mountains are clothed with birch and Scots fir, the white stems and delicate spreading branches of the former lending that delightful sylvan beauty which is one of the chief charms of our Trossachs scenery. The more robust boles of the firs, firmly fixed on the precipitous slopes and ledges, serve to lend that wild and natural appearance befitting such alpine districts. All around, as far as the eye can reach, mountain summit after summit bounds the horizon. Several of the higher of these—the Sneehätten, 7770 feet, for example—have their ridges and slopes whitened with eternal snow; and the various effects of cloud and sky fill the mind with a feeling of wonder and rest combined. Our first view of this remarkable scene was on a beautiful summer morning, with the cool wind tempered by a bright sun, the meadows waving with natural grasses, and the

herds of cows, with tinkling bell attached to the leader, browsing far up on the hills, while the vast table-lands melted into the distance. So marked is this change of scene, together with the bracing effect of the air, that almost on the instant one feels the mind stimulated and the imagination brightened by the surpassing grandeur of these peaceful alpine retreats.

There are several good "stations," as they are called, or farms, which they really are, where one can put up at; and perhaps the most convenient of these to break the journey in crossing the Dovrefjeld would be Jerkin, Kongsvold, or Drivstuen, at either of which tourists could prolong their stay with great advantage. The accommodation in every case is ample and comfortable, and indeed almost elegant. There is a large principal room for visitors, with a smaller apartment for dining-saloon; and one cannot fail to note the simple taste and refinement shown in the interior decorations, and in the cultivation of indoor flowers. As a typical example, take the room most frequently used. Though only the reception-room in a country inn, it might be a pattern to many a more pretentious establishment. The floor is painted a rich yellow, with a slate-colour border all round, while the roof and doors are white. The walls have a light gilt paper with white ground. A large stove is in the corner. At the six windows are beautifully grown flowers in pots—tall geraniums, fuchsias, pelargoniums, and tree-carnations—yellow, pink, and rose colour, all healthy and well-grown plants. A table bears a vase of wild-flowers. Ivy is grown in pots suspended from the four corners of the room, and festoons the walls round the ceiling in long stems and perfect drooping leaves. Neat cabinets and furniture of native manufacture, with chairs of various kinds, are arranged in the room, the whole giving an aspect of comfort which one cannot but enjoy.

Not to the ordinary tourist alone is the Dovrefjeld a place to be remembered. To the student of nature, whether botanist, geologist, or zoologist, there is here a wide field for exploration. The native alpine flora is particularly rich and varied, and far exceeds anything to be found in similar situations in our Scottish Alps. In a botanical point of view, some of the mountains are more favoured in this respect than others; and perhaps the Knudshøe, 6700 feet, near Kongsvold, may be specially mentioned, as the alpine flora occurs on its slopes in the greatest richness—so much so, that it would seem to be the home of

many of the best and rarest plants. A parallel might also be drawn between it and our Ben Lawers; though on Knudshøe there are many species which are not represented in our Scottish flora at all, while others which are only sparingly distributed with us, are found in profusion and luxuriance in the Dovrefjeld. The botanist who may be thoroughly familiar with our Highland mountains, and may have also wandered over the higher Alps of Switzerland in search of rarities, could still have his eyes delighted and his experience widened by a visit to the Dovrefjeld. In a mountain ramble he can find *Diapensia lapponica*, *Artemisia norvegica*, *Cassiope hypnoides*, *Vahlbergella apetala*, *Sagina nivalis*, *Gentiana nivalis*, *Primula farinosa*, *P. stricta*, *Papaver nudicaule*, *Ranunculus alpinus*, *R. glacialis*, *R. pygmaeus*, *Ophrys alpina*, *Campanula uniflora*, *Antennaria alpina*, *Astragalus oroboides*, *Draba alpina*, *Tussilago frigida*, *Saxifraga cotyledon*, and many other rare alpine forms. As showing the abundant distribution of some of the alpine plants in comparison with our British flora, we might mention one species in particular, *Lychnis alpina* (Alpine catch-fly), very plentiful on the roadsides and slopes. This pretty and attractive flower is always a choice favourite with a Scottish botanist, as it only occurs with us in the Clova mountains, and there limited almost to one locality. Another plant, *Saxifraga cernua*, found only on the summit of Ben Lawers, and in that place very sparingly, seldom in flower, and always in a stunted form, occurs plentifully all over the Dovrefjeld, sometimes ten inches high, and always with well-developed white flowers. Besides these rarer species, all of which are in abundance, the whole region is rich in our best Scottish alpine plants. The following well-known species need only be enumerated:—*Alchemilla alpina*, *Andromeda polifolia*, *Astragalus alpinus*, *Bartsia alpina*, *Cerastium alpinum*, *Cornus suecica*, *Dryas octopetala*, *Erigeron alpinum*, *Mulgedium alpinum*, *Saxifraga aizoides*, *S. aizoides* var. *aurantiaca*, *S. oppositifolia*, *S. caespitosa*, *Sibbaldia procumbens*, *Silene acaulis*, *Thalictrum alpinum*, *Saussurea alpina*, *Arctostaphylos alpina*, and *Menziesia cærulea*. Along with these, even in such high altitudes, are met many of our Lowland plants, including *Geranium sylvaticum*, *Parnassia palustris*, *Trientalis europæa*, *Comarum palustre*, *Myosotis sylvatica*, *Paris quadrifolia*, and *Euphrasia officinalis*.

A peculiar feature possessed by the mountains of this range

arises from their being entirely covered in the higher altitudes with a green and also a brown lichen, which grow thickly, very much the same as grass or heather would do with us. These lichens are quite dry to the touch after long exposure to the sun, and crumble in the hand ; but they give a good foothold to the climber, being compact and springy to the tread, and making mountaineering comparatively easy. They also afford food for wintering cattle, being gathered and heaped together in the autumn, and in the winter brought down in sledges over the snow to the homesteads. Another use these lichens have, and which in a geological sense may be considered a very important one in such a rocky country as Norway, is their tendency to pulverise and disintegrate. The small particles, being carried down by the rains and melting snow from the mountain slopes, serve to make the beginnings of the soil that in the crevices and valleys eventually comes under cultivation.

The traveller who visits the Dovrefjeld, and who may reside sufficiently long at its hospitable inns, will find that there are ample resources around him for recreation and enjoyment, and he will also become acquainted with the manners and customs of its interesting people. The bustle and activity of town life are quite absent, but the earnestness and quiet homeliness of a simple, industrious, and hardy race will be very apparent. In this way a holiday amongst the mountains, though it removes one from the ever-changing stream of tourists, will give a better idea of what Norway and Norwegians are, and impress one more with the almost unique conditions of the country, than any stay in the more popular and more frequently visited districts. A noteworthy feature in passing over these mountains is the excellence of the roads, and the consequent ease with which ladies can travel.

Natural History Notes from Upper Coquetdale. BY
WILLIAM THOMPSON, Harbottle.

BIRDS.

MERLIN AND KESTREL INTERBREEDING. In the Spring of 1886, rather an unusual, or as far as my knowledge goes, an unprecedented thing occurred on Barra Crags. A male Merlin Hawk (*Falco Æsalon*) mated with a female Kestrel (*F. Tinnunculus*). The result was a progeny of four. The keeper (Taylor residing at Angryhaugh) shot the Kestrel and found it

feeding the young on mice, water-rats, etc. A few days after the Merlin was trapped, and it then appeared that he was supplying the young with grouse, partridges, etc. Mr Mather, Alwinton, obtained three of the young birds, and kept one till it could fly.

HOBBY (*Falco Subbuteo*). Some years ago a specimen was shot at Heigh in Kidland; a migrant.

OSPREY (*Pandion Haliaetus*). In 1883 a female Osprey was shot by George Fife, keeper at Barra Scaurs.

PIED FLYCATCHER (*Muscicapa atricapilla*). This was first observed in 1882 by Davidson, the Clennell keeper. A pair had ejected a pair of Redstarts from their favourite nesting place. They return annually. *M. grisola* is scarce in this district. [Seen at Craggside and opposite Sharperton.]

GRASSHOPPER WARBLER (*Salicaria locustella*). Rare.

GOLDFINCH (*Eringilla carduelis*). In 1885, Goldfinches were seen at Harbottle Peels, where James Rogerson unsuccessfully tried to snare them.

BROWN LINNET (*Linaria cannabina*). Scarce.

WHITE STARLING (*Sturnus vulgaris*). A white Starling has been seen frequently (1887) at Harbottle Peels.

GREAT SPOTTED WOODPECKER (*Picus major*). Example shot in 1887.

KING-FISHER (*Alcedo Isipda*). A pair bred at Ramshaugh in 1885; and continued there in 1887. A few are sometimes seen in the Holystoneburn.

DOTTEREL (*Charadrius morinellus*). "Common." [Particulars however would be desirable.]

HERON (*Ardea cinerea*). [Mr John Thomson, whose list of most of the same birds drawn from the same source was sent me by Mr Thompson, says that one of the shepherds at Uswayford, told him, that previously to 1860, when it was shot, a particular Heron frequented the Usway burn, near to his house for twenty years. Writing at Harbottle, he saw from the window eight nests of Herons to the east, four to the west, and one down in the hollow.—J. H.]

WATER-RAIL (*Rallus aquaticus*). Found on the Alwin by Mr Miller, Biddleston.

KITTIWAKE GULL (*Larus tridactylus*). Found dead on Woolhope Hills (Kidland) some years ago. Mr Cordeaux on seeing it said he had never known one so far west. [Doubtless the victim of a gale blowing it from the Farne Islands.]

QUADRUPEDS.

BADGER (*Meles Taxus*). One was found sleeping at Whiteburnshank (Kidland); and killed by Murdie, the shepherd, and his dog; it was a female and weighed 19 lbs. Recently several Badgers have taken up quarters at Thrunton Craggs, Whittingham, on the sandy banks.

POLECAT (*Mustela putorius*). Thirty years ago Polecats were common here; but are now almost extinct; only one having been recently known, which occurred in the winter of 1882, in the neighbourhood of Parkhouse. No other has been seen during the last twenty-two years, the period during which I have been here.

SQUIRREL (*Sciurus vulgaris*). It was seven years after I came here that the first Squirrel was trapped; but now they are very plentiful—this season (1887) as well as the last.

Old Roads on Gala Water and the Vicinity. By MISS
RUSSELL, Ashiesteel.

No doubt Scotland owed her existence, or at any rate independence, very much to carrying out the system which was the formal bequest of Robert Bruce—that of leaving the country undefended and deserted. But it is very strange to find how rough things were in the way of roads and other means of communication till the last century.

A dowager lady who only died in 1873, the aunt of a well-known baronet, used to say that when she first married, in Selkirkshire, a year or two before 1820, two aunts of her husband's were alive, who remembered the Gala Water route before there was any made road.

As the first road, that on the west side of the valley, which is very up and down compared to the excellent road on the other side, was made, according to the Statistical Accounts, etc., in 1750, it seems likely these ladies may have been grandaunts of the bridegroom; but the only question of importance is, whether they really remembered themselves seeing what they described.

In their childhood or early youth, when the ladies of the family went to Edinburgh, they rode straight up Gala Water, by a line much like that of the present railway, crossing the stream many times; which is intelligible enough. But the point where the track, like the present road, crossed to the west side of the valley, and turned up into Middleton Moor, to avoid running straight into the deep deans between Crichton and Borthwick, was left so entirely unmarked, no doubt as a trap for invaders, that it was necessary to count the crossings accurately, to be sure when they were past Kilcoulter, near the present Heriot station. And to be sure of this, one lady was entrusted with a number of pins corresponding to that of the fords; the total number was about sixteen, but it would depend on where they struck into the valley; and these pins were stuck in the cuff of her riding habit, and at each crossing she removed one, and stuck it in her sleeve higher up. When all had been moved, they knew that they must turn up into what was no doubt then the open moor on their left.

Of course the most hilly road was better than this, as a very moderate amount of rain would make the valley entirely im-

passable. In fact it was not the great engineer Telford, but his predecessors, who really opened up the country.

The old road from Berwickshire to Glasgow, by which corn was largely sent in the last century, is still remembered; the old pack-horse road, like a large ditch, going down to the crossing of the Caddon near Whitebank, was lately pointed out by a man in the neighbourhood. The road came through Wedale by Langshaw, over Crosslee moor, went over the pass at Laidlawstiel, and came down on the Tweed between that and Holylee—it is still to be seen there. The corn seems to have been for the supply of the rapidly growing town; it is impossible it can have been for export, as I have heard supposed. A trace of this old high road remained in there being a blacksmith at Laidlawstiel till comparatively recently.

The precipitous slate-rocks on the Tweed at Thornielee made any regular track along the river on that side impossible.

On British Urns found at Hoprig near Cockburnspath, Berwickshire. By JAMES HARDY. Plates I., II., III., IV., V., VI.

ONE of the most valuable discoveries of British Urns in Berwickshire was that made in March and April, 1887, at Hoprig near Cockburnspath. Hoprig is an extensive farm that lies next to East Lothian, and is bounded on the N. and N.W. by the Oldhamstocks or Dean Burn, and by the boundary or Berwick Burn. It is on the estate of Mr Hunter of Thurston, and is tenanted by Mr Frederick F. Smith. Short graves have at various periods been ploughed up on the gravelly knolls prevalent on Clifton hill there, which intervenes between the main road to Cockburnspath and the upper part of Dunglass dean. These were constructed of red sandstone slabs that had been conveyed from the coast near Cockburnspath Cove. After the top-slab had been removed little regard was paid to them; as only a few fragments of bones had survived the lapse of ages. The bodies had been placed in bent or doubled up positions.

The situation of the newly indicated cemetery is in a different direction, and rather to the S. by W. of the farm place. Till within recent leases this ground was an untilled moor, with a

scanty wiry heather as a covering, and became elevated at its upper verge with a low ridge, in which were three eminences called from the scrubby heather which they produced, the Birny Hills.* The general soil is chiefly a thin sand, gravel and mould intermixed; underlaid by a yellow till, in which where moist, bog-iron ore is developed. The tops of the low flat hills are collections of gravel and sand in layers: there is first the surface soil, then gravel, then a rough river sand, and beneath it a finer sand, and finally the yellow till. On the west, at the outer side of the field, and beyond the ridge which there flattens out, lies a strip of depressed swampy ground now planted with firs for the most part, but formerly filled with stagnant water in winter, and called the Black Dub. This water is now reduced in volume by a ditch intersecting it; the section of which reveals a very fine yellow clay, or "ha' clay" formerly used for laying clay floors, which had been turned to advantage by the old inhabitants of the land in the manufacture of fictile ware. It was in the flattish area, which is 45 feet in diameter, on the top of the Middle Birny Hill that the graves were found. (See plan, Plate I.) The soil is pretty free all over of small stones, but a considerable number were assembled here at the north eastern end of the area, as if for a purpose, probably for a cairn. When first broken up, two leases back, it is possible that the bulkier stones were carted off for building purposes. The first cultivators had not gone deep enough to penetrate the mystery of the hillock, which was probably crowned by a cairn with lesser tumuli within its environs.

That it had been devoted by the ancient inhabitants to sepulchral ends was first revealed on the 23d March, 1887, while the ground was receiving a deep furrow for a potato crop. The plough struck an obstruction, which on examination was the bottom of an urn, which it fractured. With their plough staves two of the men raised the urn, and when they had satisfied their curiosity, unfortunately left it lying without informing their master. At night, however, a number of thoughtless boys collected and smashed the venerable relic; but the tenant, Mr

* *Birny*, "Covered with the scorched stems of heath that has been set on fire"—"having a rough or stunted stem."—*Jamieson*. An East Lothian farm in the vicinity is called *Birnicknowes*. *Birn*, "dry heathy pasture, reserved for the lambs after they have been weaned." Welsh, *bryn*, a hill. To *birn* lambs, to put them on a poor dry pasture.

Smith, on hearing of the discovery and the destruction of the urn, had the fragments collected, and, after exercising the utmost patience has carefully cemented them together; and it may now be said to be again complete. (Plate I. f. 2.) It was placed near the outer western end of the area, among sandy soil, in a hollow that had been prepared for its reception, and was guarded all round with boulders, but was unprotected by a cist. The boulders were sandstones, greenstones, pale porphyries and Silurians, brought from some of the neighbouring burns, which are at some distance. They are of the same kind of stones with which the stone-dykes hereabouts are coped, which were obtained from these burns. The urn was placed in a reversed position on three flatter stones fitted together and sunk in the gravel and sand that underlie the surface soil.

It was of a cinerary character, and covered a considerable quantity of calcined bones, which had been still smoking when it first enclosed them; for the fumes have blackened the lower portion of the inside, and two stains of smoke are still perceptible on the exterior where it had issued from two circular perforations, placed like a couple of eyes below the rim, which are unusual in this kind of urn. (Plate II.) It is a magnificent urn, one of the largest and most substantial ever found in the district. The height is 19 inches, the diameter of the mouth 16 inches, and the circumference some 45 inches. It has been formed of a firm well-fired clay, such as is obtained at the present day at the bottom of the Black Dub, and of a yellowish red colour, unglazed, but smooth, and having a greasy feel, as they say of some minerals. The shell is fully half an inch thick. It has been ornamented with great care and no little skill. The wonder is to find such a variety of taste and design both in form and decoration of these primeval vessels. Both the shape and the ornament are *sui generis*, quite different from Roman or Saxon workmanship, and belonging to a more pristine era. Of the fabricators we know nothing except from their funereal remains.

In describing this urn I place it on its narrow bottom, which forms the apex in the figure. It forms two sections, an upper and ornamented, and a lower and smoother division. The upper part of the urn displays three raised bands, adorned with 8 projecting knobs, (very indistinct in the engraving.) Between two of these knobs, on one side only, are two perforations, which have been bored chiefly from the outside, as they are wider in

that direction, (the old whorls are bored in a similar manner). These bands, as well as the knobs are traversed obliquely by short string or comb markings; but it is observable, that the portion of the ornament that would cross the perforations, is removed to the underside of the band, not above its ridge. Then intervenes a space with string markings arranged alternately vertically and horizontally, but the spaces are not equidistant. The second and narrower raised band has 12 knobs, which as well as the upper and lower margins of the band carry oblique marks of string pattern. The lower part or division is very smooth, as if polished, and is interspersed with numerous ovate or oval smooth depressions, which Mr Smith thinks were done with the nail of the fore-finger. After an interval, where there are fewer of these marks, they again increase on the tapering contraction towards the narrow base. These numerous marks remind one of the black dots with tails placed on funeral escutcheons, emblematical of the tears of bereaved relatives and friends. There is a regular formed flat base, with its outer rim neatly notched with oblique bands formed of close-placed nail impressions.

It is not improbable that a separate mound distinguished the locality of this urn, which had been levelled when the heather-clad surface was first "torn out."

I heard of this discovery early, but owing to a severe cold, could not venture out, during the bitter winds then prevalent, but the Rev. Joseph Hunter, Cockburnspath, came to Mr Smith's assistance, and both of them resolved to have a trial made by digging down nearer the centre of what had apparently been a Cairn. Here on April 8th a cist composed of sandstone and basaltic slabs, was come upon; (Plate I. F. 6.); the cover of which had been removed, possibly, at some former period of disturbance. There was no bottom slab; the bottom being sand. It lay E. and W. The cist was 45 inches long by 29 and 32 inches broad, and 24 inches deep. In this had been deposited a doubled up skeleton near the western end; some of the lumbar and leg bones; and a few vertebrae remained; but most of the osseous fragments were in a decayed state. There was no cranium. It is just possible, that the upper slab had once been ploughed up; and taken away, along with the cranium, and that then the grave had been covered in. At a short distance were deposited three flints, and a little apart a portion of botryoidal red hematite iron ore, rubbed

down and polished on one side, and scratched lengthways as if it had been used as a "frizzle" for obtaining light when struck with, or by striking on, a flint. (Plate VI. Fig. IV.) I have not seen it mentioned that red hematite has been previously met with associated with flints. It is usually a ball of iron pyrites that occurs in this juxtaposition. These balls of red hematite occur *in situ* at Bilsdean in the Calciferous Sandstone, and at Greenheugh in the Old Red Sandstone; and they are distributed throughout the Drift. They are commonly called "thunderbolts," and are believed to be such. The Figure is somewhat less than the original. The flints had been obtained by barter. Two of them of a darker grey are of the nature of flakes or cores: Fig. I. which shews the upper and lower surface is broken on the edges, but not dressed; Fig. III. is a flake with undressed edges. Fig. II. (two views) is of a paler grey, and is carefully dressed on the broadest end, and formed into a scraper for polishing hides: the original white chalky covering is still attached to the convex surface. The Flints are figured of the natural size. All the three have been subjected to fire. A notion of another world not unlike the present, had been entertained in the community of which the deceased was a member.

A few feet behind this a cavernous pit (Plate I. fig. 3, 4.) was come upon surrounded with a supporting wall of boulder stones, similar in character to those surrounding the great urn, Plate II. These stones were a necessity to prevent the sand from slipping inwards. The hollow was 3 feet by 4 feet 2 inches in diameter, and 2 feet 8 inches deep. The sand and soil in the interior were mixed with wood charcoal and burnt bones, but there was nothing else to indicate its object. A ponderous sandstone slab lay at the bottom, which must have entailed much labour to convey to the place. It was left undisturbed, being taken for a bottom stone, when I visited the spot on April 15th.

I returned on the 18th when Rev. Mr Hunter joined us. A new digging was made on the south side, where much black earth was conspicuous, and very soon this was seen to be mingled with an accumulation of burnt bones and wood charcoal. From among the relics of mortality I picked up a considerable number of fragments of a medium sized urn, which from being blackened in the interior, had been used for burial purposes; and both ashes and charcoal as well as bones still adhered to portions of it. (Plate I. fig. 5. Plate V.) In going deeper, the deposit was

found to overlie one of the drains that here traversed the field, and possibly it had been broken into by the drainer some thirty or forty years ago. If there was any cist or protecting stones, they had been removed. Mr Smith has cemented the fragments together, and has drawn the design. He estimates the dimensions of the original as 8 inches in height, and 6 in diameter. It was of a redder clay than the first. It was outside the cairn area, and may have had a mound of its own superimposed over it.

The great slab at the bottom of the pit near the summit of the area remained in position till April 25th, when Mr Smith assisted by his steward raised it. This slab was 40 inches long, 31 broad, and 7 inches thick. It was of a yellowish sandstone of the Calciferous or Tuedian series. Instead of being a bottom slab, it was a cist cover, and a very neatly formed cist lying E. and W., almost shaped like a small coffin, and of unequal breadth, was discovered beneath it, the narrower end being at the W. One of the enclosing stones was a greenstone; the rest were sandstones; one of the yellow sandstones had been taken from the bottom of a burn, as the soft portions had been hollowed out by the action of running water. Inside, the cist was 33 inches long, 14 inches at the narrow end, and 21 at the broad one; 13 inches deep. It was placed in a casing of boulder stones like the superincumbent pit. It was filled with coarse sand. There were two small urns filled with sand placed in two of the corners obliquely to each other, one a very beautiful drinking cup, the other a food vessel, both standing upright. (Plate I. figs. 3, 4.) No remains of a skeleton survived. If it ever was there, the calcareous matter had become dissipated among the sand; and in so narrow a space the body would be a doubled up one. Possibly an immolation of wife or slave had left its traces among the icinerated bones visible in the upper compartment. There was a slab at the base of all, of a brittle sandstone such as is quarried in Hoprig dean at the present time. The depth of the two compartments combined was 6 feet. I noticed that a thistle root (*Carduus arvensis*) had nearly crept down the entire depth.

The figures which are from photos give a better idea of the urns than any description. Mr Smith has exemplified them on a magnified scale in some beautiful drawings. The elegant *Drinking Cup*, Plate III., has the two upper series of transverse lines, 10 and 4, deeply fluted and entire; the under series of these, 4, 4, 5, and

2, are dotted and have been made with a notched or toothed implement. A wavy oblique pattern runs round the lip. An article with two projections has formed the lines of dots which are double in the intervals unoccupied by lines, but there is a considerable variety in their position some being horizontal, others zig-zag or in threes and twos obliquely. These could only be brought out by a minute drawing. The height is $7\frac{1}{2}$ inches, diameter $5\frac{1}{4}$, the base $7\frac{1}{2}$.

The *Food Vessel* (Plate IV) has no ornament on the lip; after a free space there is a circular band of sigmoid depressions, and then 6 waved bands with intervening fluted intervals, the latter of which have been impressed with a central line of dot impressions made by some implement; then follow a space with zig-zag ornamentation succeeded by 6 closely dotted wavy encircling transverse lines; then a space with intersecting oblique lines; and beneath these 6 wavy closely dotted transverse lines; to be followed by 2 rows of crescentic depressions; and then 5 very wavy and sometimes almost coalescing transverse dotted lines, succeeded by two of still more minute and irregular lines of a similar design; a sigmoid band of ornament encircles the base. Height $5\frac{3}{4}$, Diameter $4\frac{1}{2}$, Middle $5\frac{1}{2}$, Base 3 inches. The description is from a minute drawing made by Mr Smith.

Of these graves those enclosing urns may be of the Bronze period, and the race to whom they belonged—brachycephalic. I call them British, but they are not British of the present race. Camps of these people, British camps they are usually termed, remained till within recent times on the hills in front of them, and towards the S. E. other similar urns were obtained, not many years ago, on the farm of Ecklaw where adjoining Hoprig-Shiels. Unfortunately they fell into the hands of ignorant people, who neglected them and they fell to pieces. Had it not been for Mr Smith's interposition, the present collection would probably have met with a like fate; at least they could never have been so perfectly presented to the notice of the Club.

Sturton Grange. By J. C. HODGSON, Low Buston.

STURTON GRANGE, a township in the North West corner of Warkworth Parish, is bounded by the parish of Shilbottle, the townships of Low Buston, Brotherwick, Warkworth, and Walkmill, and the chapelry of Brainshaugh. It is 1114 acres in extent; its soil, mostly of good quality being in tillage or in rich old pasture. Its fields are well watered: the Grange burn enters its Western borders by the Red-ford gate, runs through the picturesque Black Dean, past the site of the ancient monastic buildings on the Grange Green, and ultimately through beautiful Houndean into the Coquet, a mile above Warkworth Bridge. Good sandstone has been wrought from its quarries, and bricks and draining tiles of medium quality have been manufactured from its clay. There is a limestone quarry in the adjoining township.

The township has long been divided into the Grange Farm of 408 acres; South Side of 402 acres; and Eastfield of 272 acres; of the last a portion has been taken by the N. E. Railway for Warkworth station, &c.

In 1831 the Rateable value was £1396 with a population of 88. In 1871 the population was 114 and this year 1888 the Rateable value is £1711.

The Tithe Rent Charge payable to the Vicar of Warkworth is £33 2s. 6d.

ANCIENT HISTORY.

If the grant of King Ceolwulf circa 737 to St. Cuthbert* covered the whole of the parish of Warkworth, then Sturton would be included, though it is not particularly mentioned. The grant was soon resumed by the King's successors.

Carham † was by King Henry I. granted to Walter Espec of Hamlake, Yorkshire, who there built the Castle of Wark before the year 1136. Walter's only son was killed by a fall from his horse: his sister Adeline wife of Peter de Ros had a son Robert de Ros, who again was father to Everard de Ros Lord of Wark. It is in the possession of this Everard that we next hear of Sturton Grange under the name of Strettuna, when it was by him granted to the Cistercian Abbey of Newminster, "eldest daughter of Fountains." In its Chartulary, which has been

* C. J. Bates, *Border Holds*, p. 81.

† Hartshorn, ii, pp. 31, 33, 34, 35, etc.

published by the Surtees Society, is a series of interesting charters headed *Streton*, beginning in the reign of Henry II. (1154-1189). The first is a grant from Everard de Ros to "the Abbey of St. Mary Newminster and the monks there serving God, for the soul of King Henry the Elder, and for the salvation of my Lord King Henry son of Mathilda, and of his sons, and for the souls of Walter Espec, and R. de Ros, (of) my father and my mother, and of all my ancestors, and for my salvation, &c. Strettuna by its right boundaries, and with all its appurtenances, in wood and plain, in meadow and pastures, in roads and lanes, waters and mills, and all other things, free and quiet and relieved from all civil services and secular exactions, and pleas, and assessments, and aids, and taxes, and danegelds, and hornagelds, and from that service of the king called Utware &c.; by these boundaries, viz. as Alriburn by Strectuna runs to Kideford, and from Kideford as the boundary of Strectuna and Brotherwick goes to Herefordlees, and thence as the boundary of Strectuna across Herefordlees goes to Hereford, and thence by the Coquet to the ditch (fossatum) of Wyteley, and thence as the boundary of Strectuna goes to Merethorn, and then to Hundhakeston, and from Milneden, and from Milneburn to Colepethburn, and thence to Harethorn burn, and from Harethorn burn by a path that goes towards the North as far as the road that runs by the great trunk (truncum magnum) to Harethornley, and thence across by Leremouthley towards the North East to the aforesaid Alriburn, and all 'Strectuneles' beyond the aforesaid boundaries to the plains of Sipplebottle unto the common between Strettune and Sipplebottle." From this description of boundaries we see that the grant included what is now the separate township of Walk Mill (127 acres), in old records called the Grange Walk Mill. Alriburn or Alderburn is the Tylee Burn, Kideford, the ford near Warkworth Station now superseded by Houndean Bridge; Brotherwick speaks for itself. Herefordlees was probably Warkworth Moor: the ditch or lech of Wyteley may be identified with the lech which still divides Walk Mill from Guyzance; Merethorn and Hundhakeston have not been identified; but Milneden and Milneburn may be recognised in the field at the West of South Side Farm called Milden Hill and the adjacent runner.

Of the Assessments from which the lands were to be relieved,

Mr Hodgson Hinde* says "that the holders of the Baronies "paid to the King the assessments for which they were liable, "and indemnified themselves by exacting payments from their "subtenants, generally making a large profit." *Danegeld* was that impost levied in the seaboard counties from Anglo-Saxon days, at first to bribe the dreaded Danes to leave the coast and afterwards for general purposes. The *Hornageld* or cornage or Noutgeld was the tribute of horned cattle originally paid in kind afterwards commuted for a money payment. *Utware* was probably that service by which Beanley was held in the reign of King John when Earl Patric was to be 'Inborg and Hutborg,' or in later spelling 'Inborwe and Utborwe,' between England and Scotland..... Mr Hinde holds that the words mean in-bearer and out-bearer, the bearer of communications between the two kingdoms.

Other charters are a confirmation similarly worded from Everard de Ros' son Robert: a license from William de Hanvil "to the monks to erect a fence between the Grange of Stratton "and the Ville of Brotherwyk: a grant from Galfridus de "Hanvil of about an acre and a half below Langdyke, which "goes by the Royal Road (via Regia) Kideford to the moor of "Warkworth." The ancient road thus dignified with designation of royal, may still be traced in part. It skirted Brotherwick township, and crossed Warkworth Moor in a narrow deep-cut track, to the disused Pauper-Ford below Morwick. "Another "is a grant *by* the convent of Herefordlees about the year 1250 "to Robert son of Roger with reservation of common." In this no consideration is named; Herefordlees was probably a portion of the moor which until late years belonged to the burgesses of Warkworth. Then comes "a License from Hugh "de Morwick for a milldam in the plain of Stratton below "Wyteleys." The remains of this dam may be seen crossing the Coquet at Walkmill. "A license from Nicholas de Aketon "(Acton) to win seacoal in my wood of Midilwode for the forge "at Sturton Grange. An Agreement made with Alexander de "Hilton before the justices itinerant at Newcastle in 1240 "defines the boundaries between the Grange, Sipilbottle and "Gysnes. Also an agreement between the convent and Robert "de Hilton as to the making of a fence between the Grange and "Shilbottle."

* Hodgson Hinde, North., pp. 252, 258, 260, 263.

Among other place names are Gysnerod, Colepeteburn (? Coalpit), Harethorneley, Hunthakeston, Milnedene, Rubedyk, and Moryley: and persons Hugh of Haysand, and Alexander de Hilton.

"Another agreement regulates boundaries between the Grange and the land of John de Acton and Gilbert de Aula de Botleston (Buston) and makes mention of St. Andrew's fountain and Alnewykford."

"A very interesting charter relates to the payment of Multure (tercium decimum) by the owner and men of Buston at the mill of Stretton." Low Buston as well as Sturton Grange was in the manor of Wark, and such is the force of custom that until 1879 the owner of Low Buston continued to send Wheat to the adjacent Grange Mill to be ground into Flour for household use. The payment by multure had been discontinued and the miller was paid 3s per old boll for grinding and dressing.

When the see of Carlisle was founded by King Henry I, the Rectory of Warkworth was given to the Bishop as part of the endowment. The Newminster monks after settling their boundaries, next sought to free their estate from the Rectorial Tithe. They obtained a resignation apparently under pressure from Pandulf the Pope's Legate, from Hugh Bishop of Carlisle (1219-1223), and confirmations from Bishop Silvester of Carlisle, and from Bishops Marisco (1217-1226) and Farnham (1241-1248) of Durham, also from the prior and convent of Durham, and the prior and convent of Carlisle. They even procured a papal mandate in their favour, dated from Viterbo 20 June 1237, from Pope Gregory IX to the Archdeacon of Durham.

In 1290 K. Edward I. granted to the Abbot and Convent of Newminster free warren in Stretton.

In the *Testa de Nevill* (tempore Edw. I., Edw. II.,) the Grange of Stratton is mentioned as held of the Barony of Wark by the Abbot of Newminster. As it was monastic property, it is not mentioned in the Muster Roll of 1538.*

The lesser monasteries were suppressed in the 27th year of King Henry VIII. viz. 1536; when Newminster was dissolved. The Commissioners in their return in the following year give the value of Sturton Grange at £16 per annum.†

After the dissolution it remained in the Crown until 1545,

* *Archæologia Aeliana.* † Dugdale.

when it was granted by the King to Wm. Lord Eure, in consideration "of good, true, faithful and acceptable service." The Charter recites "that the lands and messuages were in the occupation of Hunter, Watson, Johnson, Patterson, &c., that "there was a wood called the Abbot's wood of some seven acres, "and a wood called the Abbot's spring containing some six acres, "both in the Parish of Stretton. The grant also includes "Fishings, Commons, Courts Leet, Profits of Court, Views of "Frankpledge, &c., Freewarren, Bondmen and Bondwomen, "Villeins, &c. The lordship of Stretton was of the clear annual "value of £28 6s. 8d. The rent reserved to the King and his "successors is 32s."

The Eure family was descended from Henry de Eure 3rd son of John Fitz Robert, Lord of Warkworth, who died in 1240.* Kirkley near Ponteland was its principal seat. Wm. Lord Eure was Deputy Warden of the East Marches under Edward VI.,† and general of the Army against Scotland in the 12th year of Elizabeth. The fee-farm rent reserved to the King in 1545 is still paid to an Almshouse in Bristol, to which it has been assigned by the Crown.

A curious glimpse of the unsettled condition of Border Life previous to the Union of the two Crowns is seen in the following extract from "A Booke of the Losses in the Middle Marches of "England by the Scots Thefes" presented to the Warden Court held at Alnwick in 1586.‡

"Complaynes Widdow Jacson of Sturton Grange, uppon Hewey "Douglas and Edward Douglas of,———, that they and "ther accomplices, in winter, 1584, hat stolen and receaved of "hers, out of Sturton-grange, 48 shepe, done agaynst the vertue "of trewe, and not redresed, prayinge justice herin."

Hew Douglas hailed from Swynside, Oxnam Water, Roxburghshire.

In the Rentals and Rates for Northumberland in 1663, "Mr. Wm. Ord of Prudho" was the proprietor of Sturton Grange with a rental of £120; of the Mill with a rental of £10. Of the Grainge Walk Mill neither the proprietor nor rental is given, but its County Rate was 2s. 6d., while that on the Grange was 15s.

When WALK MILL was separated from the estate and con-

* C. J. Bates. † Hutchinson.

‡ Border Club Transactions, vol. I., p. 71.

stituted into a township does not appear. It contained 1 "farme" but its subsequent History is obscure. It is now owned by Mr. John Tate of Barnhill.

STURTON GRANGE EAST FIELD.

The farm of Eastfield with the Grange Water Mill seem to have been alienated between 1663 and 1691. In the latter year Edward Cook of Togston New Hall bequeathed Eastfield to one of his sons: to others he left Brainshaugh, Low Newton, Newton-on-the-Moor, Blakemoor, Togston, &c. In the Faculty List of Pews in Warkworth Church, in 1719, John Cook has a pew for Sturton Grange. In 1731 John Cook of Eastfield was elected an overseer for highways for the Grange district: in 1744 he was Churchwarden. In 1747 he voted for that estate at the County election,* and in 1764 we find the entry at Warkworth of the burial of John Cook senior of Eastfield.

In 1750 John Cook of Blakemoor was married at Warkworth to Margaret Cook of Eastfield, and in 1753 Thos. Storrer of Rothbury was married to Ann Cook of Eastfield. John Cook was warden in 1766 and voted for his estate of Eastfield* in 1774. In 1777 the Churchwardens received of Mrs. Cook of Eastfield 10s. for graveleave for John Cook who in that year died and was buried within the Parish Church. In 1781 there is the following entry in the parish books "Received for grave leave for Mrs. Cook, 10s." The wardens do not say of Eastfield, but we may so conclude as the name of Cook does not again appear in connexion with Eastfield, which was about that time purchased by the Applebys. The Appleby family had been copy holders at Acklington for some generations and yeomen; the purchasers of Eastfield were Thomas Appleby and his son Nicholas; they paid some £8000 for it. Thomas who died in 1790 aged 67 years, and was buried at Warkworth, had married Isabella Brown of East Chevington, who was of the same family as Sarah Brown (wife of the Rev. Jos. Cook of Newton) who inherited half of the estates of the Hauxley Widdringtons, at the death of John Widdrington in 1797. Nicholas Appleby was one of the Twenty-four of the parish in 1790, and a churchwarden in 1787 and 1809. His name with the year 1797, is on a sundial which still remains at Eastfield. He was a man of ability and of very frugal habits:

* Poll Book,

at his death in 1828, aged 72 years intestate, his only sister Margaret Appleby succeeded to Eastfield, Buston Barns, Causey Park Bridge and Earsdon Hill as well as to his personal effects. Miss Appleby who died in 1830 bequeathed Eastfield to her maternal kinsman, Wm. Johnson son of the Rev. Henry Johnson, Vicar of the two Bywells, &c., by his wife, who was a daughter of Edward Brown of East Chevington. In compliance with the condition of the bequest; Mr Johnson took the name of Appleby: he married first, Isabella Marshall sister of Dr. Marshall of Chatton Park, secondly, Margaret widow of Ralph Fenwick of Ulgham and daughter of the Rev. Ralph Errington of Cowpen. His brother Captain Edward Johnson R.N., F.R.S. was author of "Practical Illustrations of the Deviations of the "Compass with explanatory diagrams." Another brother was father to the late Walter Johnson, the well known Secretary of the Northumberland Agricultural Society.

Mr Wm. Appleby had no family, and in 1858 the estate was sold by his Trustees to Mr Anthony Strother of London, a descendant of the family of Strother of Kirknewton. Mr Strother pulled down the unpretending, but comfortable and appropriate mansion, and built the handsome Gothic residence now owned by his widow.

STURTON GRANGE SOUTH SIDE.

The farm of South Side continued to be held by the Ord family until 1796, when it was sold by Wm. Ord of Stone Croft near Hexham, son and heir of Richard Ord of Sturton Grange to Thomas Dodd of Shoreswood. In 1804 we find Jos. Dodd a Churchwarden for Sturton Grange South Side. In 1820 it was again sold by Nathaniel Dodd to Joseph Fenwick of Ellington. Jos. Fenwick, who by industry and frugality had considerably raised his position in life, died in 1830 aged 84 years, and bequeathed his estate to his nephew and adopted son Wm. Jeffrey, who then assumed the name of Fenwick. He married Frances, daughter of Mr. John Tate of Bank House, but had no issue. Dying in 1860, aged 74 years, he left South Side to his widow for life, with remainder to his own nephew Mr. Jos. Jeffrey, and his wife's nephew Mr. John Tate. Mr. Jeffrey, who had taken the name of Fenwick, bought out Mrs. Fenwick and Mr. Tate. He died at an early age and was succeeded in this estate and in that of Shellacres on Tweedside by his son and heir, the present owner, Mr. Wm. Fenwick of Templehall near Coldingham.

STURTON GRANGE.

We have seen how the Ord family, who in 1663 owned the whole of the township, alienated Eastfield previous to 1691 to the Cooks, and South Side in 1796 to the Dodds: the Grange with its farm of 408 acres was retained until 1806, when the family died out.

In the Roman Catholic List of Landowners in 1715 (given by Hodgson Hinde) we find Mr. Wm. Ord of Sturton Grange. Though of the Roman Catholic Church, the Ords took their part and turn in the civil and church offices of the parish. By the church Terrier we find that in 1719, Wm. Ord of Sturton Grange owned a square pew in the North Aisle of Warkworth Church. In 1724, Richard Ord was one of the Twenty-four, and was present at a vestry meeting. In 1731, Richard Ord was elected an overseer for the Poor for the Grange district.

In 1728 the churchwardens received 2s. for Francis Ord's *Lairstone*, and 2s. 6d. for Mrs. Ord's *Lairstone*, and in 1733 they received 3s. for Mr. Richard Ord's *Lairstone*. The next heir Wm. Ord, was probably of tender years, and too young to reside on his estate, which seems to have been let to tenant farmers, some of whom may be mentioned subsequently. William Ord of Sturton Grange, (son of Richard) in 1764 married Mary Gibson daughter of Jasper Gibson of Stonecroft, and lived with his wife's family until 1796, when he purchased of Wm. Errington of High Warden, two farmholds in Newbrough near Hexham, called Foulpool and Blackpool, and built Newbrough Lodge where he resided until his death in 1806. He bequeathed Sturton Grange and Newbrough Lodge to his wife's nephew Jasper Gibson of Stonecroft, who in 1816 (having previously parted with the Grange) assigned Stonecroft and Newbrough to Trustees who sold Stonecroft to John Todd, and Newbrough Lodge to Nicholas Maughan.*

Between 1810 and 1815 the Grange was purchased by Messrs John and Christopher Jobson of Bebside, two brothers. About 1834 Christopher bought out his brother, and in 1848 sold it to Mr Matthew Liddell of Newcastle, who about 1860 made an exchange with the Duke of Northumberland for lands at Prudhoe.

Having traced the ownership of the land, we may take a glance at some other persons whose names we find as inhabitants of the township. In 1739 we find Thos. King, Churchwarden for the

* Hodgson's Northumberland,

Grange; in 1754 and 1768, Marshall Robinson, and in 1775 George Storey occupied the same office. In 1764 Marshall Robinson was one of the Four and Twenty: he was probably the same man (or a near relative) whose name we find in the Poll Book of 1747 residing at Craister and voting for lands at Broxfield, and in the Poll Book of 1774 as living at Newton-by-the-Sea, and again voting for lands at Broxfield.

South Side was tenanted by the Tates (a branch of the Bank House family). In 1723 we find George Tate a Churchwarden; in 1747, Wm. Tate for George Tate, and in 1761, George Tate filled the office. In 1750 John Clark of Hauxley married Phillis Tate of South Side, and in the Hauxley Cottage deeds is a marriage settlement of Margaret, daughter of John and Phillis Clark, made in 1779 in which the remainder man is Wm. Tate son of George Tate of South Side, deceased. Previous to the purchase of the Grange by Messrs Jobson it was rented by Wm. Story (possibly son of Geo. Story who was Churchwarden for the Grange in 1775), who afterwards married Julia Caesar Forster, a natural but acknowledged daughter of Chas. Francis Forster of Low Buston. Her Father at his death left her half of what he had to dispose of—in acknowledgement, she with her husband took the name of Forster. They resided at Thropton Cottage near Rothbury in which neighbourhood stories of her eccentricities still linger. John Jobson was maternal grandfather to Mr. W. T. Stead, the well-known editor of the *Pall Mall Gazette*.

A romantic story is told of a lady connected with Eastfield. She was a daughter of Edward Brown of East Chevington, who died in 1785, and sister to Mrs. Johnson, Mr. Wm. Appleby's mother. Miss Brown a lady of pleasing manners made the acquaintance, while visiting at Morpeth, of a gentlemanly Southerner—the acquaintance deepened into admiration with marriage as the result. The gentleman took his bride home to London, where she found ready for her a house of good style and appointments. A mystery covered her husband's professional pursuits, which woman like she must needs discover. Alas! another instance of the bliss of ignorance! she found to her utter consternation that her gentlemanly husband was a professional beggar. The deceived woman fled from her husband's roof, and reached her girlhood's home at Chevington. One day her watchful eye caught sight of her husband's dreaded approach; a minute's thought, she slipped through an open window, mounted a horse, made her escape unperceived and reached the

residence of her sister's husband, the Rev. Henry Johnson, where she found refuge. The poor lady ended her days in peace at Eastfield in 1830, and is buried by her father's side in Warkworth Churchyard.

In Warkworth Parish we find the ancient mode of assessment by the 'farm,' for the payment of Church rate and Clerk's wages, continued to 1826. Professor Creighton holds "that the use of "the word *farm* to signify an original unit of land tenure, is "peculiar to Northumberland;" and in his address to the Archæological Institute at Newcastle in 1884 gives the following quotation: "I believe that in former times the word *farm* "was used in many parts of this county to express an aliquot "part in value of a township, being one of several portions of "land of which a township consisted, each one of such portions "having originally been of equal value."

The Rev. John Hodgson in his History apprehends that "a "bovate, or an oxgate of land, as well as a carucate or plough- "land and a husbandland were all the same and consisted of no "very definite quantity of ground, the quality as well as the "quantity of which they were formed being constantly taken "into consideration. The most modern term for them "is *farm* and one of each was as much as was considered "sufficient for the maintenance of one family." We find from the Church books that Warkworth Parish, inclusive of the Chapelry of Chevington, was divided into 147 Farms. In 1794 the churchyard wall was rebuilt, each township building its own portion at 2 yards per farm, and beginning with Morwick "at "the North East corner next the tithe barn, and to go round by "the sun." As Sturton Grange contained 8 farms it built 16 running yards of walling. An observant eye may even yet detect the initial letter of each township on its portion of the wall. In 1826 the Parish Clerk's wages were paid by an assessment of 1s 6d per 'farm;' he received for Sturton Grange from

		s.	d.
Nicholas Appleby, Esq.,	2 Farms	3	0
John Jobson, Esq.,	3 Farms	4	6
Jos. Fenwick, Esq.,	3 Farms	4	6
	<hr/>	<hr/>	
	8 Farms	s12	0

In connexion with the Grange the Church Books record another ancient Ecclesiastical Assessment. In 1736 the wardens "received for Holy Bread money ending at South Side 13s."

In 1747 there is a note that "the Holy Bread money begins at "Eastfield." The collection was made in sections of the parish, this year beginning where last year it left off until some 13s. 4d. was received : the impost was exacted long after the rite had become obsolete and disappeared, but after 1749, it too was discontinued.

The site of the monastic Grange is by tradition on the Grange Green, by the side of the Grange Burn, some 150 yards east of the present onstead : the spot was marked by a fine shaped ash tree which fell in the great gale of 1881. Foundations of walls have recently been discovered when draining. One of the former owners had a piece of crockery unearthed at this place, and had been told that the onsteads of the Grange farm and of South Side had been built out of the old buildings of the monks. It may be remembered however that both of these onsteads have been practically rebuilt during the last 25 years. The Grange Mill, loved of artists, was driven by an overshot wheel and worked until 1880. The adjoining field is called the Windmill Hill:—every tradition of such a mill has died out. The field next the Low Buston Road is called the Cross Hill; and one on the western march is still called "Milden;" the very name mentioned in the original grant by Everard de Ros. Annual payments of 6d. and 10d. were payable to the Duke of Northumberland for Rent Hens out of Eastfield, but have in late years been redeemed.

Much has been done to chronicle and classify local place names: field names are quite as interesting and characteristic as those of villages. Appended is a list of names of fields worthy of preservation.

The Grange Farm.	South Side.	Eastfield.
Black Dean.	Near)	White Halvers.
Thistley Leazes.	Far { Leazes.	The Tofts.
Eight Oaks.	Fwe Hill.	Windmill Hill.
Hanging Bank.	<i>Milden.</i>	Ox Lairs.
Cross Hill.	Grange Pool.	Green Knows.
Cold Firth.	Fore Bank.	Near
Causey Flat.	Broomhill.	Middle } Awards.
Dove Cote Field.	High Hall Hill.	Far
Night Close.	Far { Owerts.*	White Sprouts.
Near)	Near {	Hounden Butts.
Middle } Yoke.	(*query Awards?)	Twenty Ridges.
Copt Hill.		Red Side.
Farney Hill.		Gaubutts.
Redford Gate (ford.)		

On the Wild Pigeons of the coast of Berwickshire.

By JAMES HARDY.

THE PIGEONS harboured in the sea-side caverns, or that breed in the fissures of the rock-bound coast of Berwickshire are generally regarded as hybrids between the native *Columba livia*, and their domestic variety, the tame pigeon; or as descended from elopers from the pigeon-house who prefer a vagrant life. Although the majority of the birds wear the wild dress, a considerable number betray their origin by the livery of domesticity, in white, piebald, sandy, and other parti-colours. In a slight inquiry into the sources of this hybridisation, and continued renovation of stock, the attention paid to pigeon-breeding in the olden times may be outlined.

The Hon. Daines Barrington in his "Observations on the Statutes," London, 1775, note, p. 209, says: "One cannot read any account of particular religious houses, without observing a pigeon-house was a necessary article of expense upon all their estates." We fail to ascertain any regulations about pigeon-houses in the Border Monasteries. Unlike England, where Hartlib (Legacy of Husbandry) calculated that in his time there were 26,000 dove-houses in England, the Scottish record of these accessories to domestic economy is meagre. Mr Cosmo Innes has remarked one grant of pigeons and dove-cots—"cum columbis et columbariis"—before 1478, in the Bishopric of Moray.* In the 6th Parliament of James IV, 4th March, 1503, it was necessary to pass an act "anent policie to be halden in the cuntrie," "that everilk Lorde and Laird, make them to have Parkes with Deare, stanks, cunninggares, *dowcattes*, orchardes, hedges, and plant at the least, ane aicker of wodde."† Thefts of "Dowes furth of Dowcates," were strictly punished: James I., Parl. 2, c. 33; James III., Parl. 10, c. 60; James IV., Parl. 6, c. 69, etc. Breakers of Dowcats, by Scots Law were fined £10 Scots for the first fault and £20 for the second; and for the third and obduracy "he may be hanged to death." When children were the culprits, the fathers or masters were to pay 13s 4d for "ilk time of trespass," or "else sall deliver the said childe to the Judge, to be leisched, scourged and dung for his fault."‡

In recent times the names of places and fields in the agricultural district on the coast have considerably changed, so that the site of old pigeon-houses cannot be readily ascertained. Dove-cot-hall (Dowcat ha'), a shepherd's house, between Cockburnspath and the site of Cockburnspath Townhead, perhaps belonged to what was once called the "Nather Maynes" of Cockburnspath, formerly the property of the Nicholsons. It is "Dove-coat hill" in Armstrong's Map of Berwickshire of 1771.

In the farm map of Redhengeh, the Dove-cot shot, 29 acres, lies between the sites of the old farms of Fala-bank and Windilaw, portions of

* Scotch Legal Antiquities, p. 45.

† Skene's Laws and Acts of Parliament, fol. 93 b.

‡ Regiam Majestatem, Edit., 1609. The Forest Lawes, fol. 139 b., chap. 3., Nos. 5 and 7.

Oldcambus Barony, that once appertained to Coldingham Priory; Redheugh a new place having superseded these.

Dowlaw, now including Western Lumsdean, Fastcastle, Duddoholm or Cauldside, Auldtoun, Newtown, and several other ancient holdings, was originally written Dowlaw and Dovelaw (Coldingham Session Records). In a Retour 1633 (Grissel Douglas) it is written Dowlaw (No. 174). In Pont's Map, 1648, it is Doula; in Retour No. 402, May 19, 1680 it is called Dowhill. In Armstrong's Map, 1771, it is Dowlaws. It first appeared as Dulaw in Thomson's Map of Berwickshire, 1821. This was adopted in Carr's Hist. of Coldingham, 1836; followed by Dr Johnston in his "Flora," and unfortunately by the Ordnance Survey, whose surveyors were chiefly strangers to the district. In the Farm Maps of 1846, it continues to be correctly written Dowlaw. When my father had temporary charge of the place, about 1814, the pigeon-cot was in the attics of the farm house, and cats sometimes obtained admission at night, and occasioned a terrible flutter among the poor pigeons, greatly to the alarm of the human inmates, one of whom was my mother.

On March 10, 1603, William Auchincraw was retoured heir of George Auchincraw, of Netherbyres his father, in 2 bovates of land, commonly "Oxingait of land," lying in Flemingtoun *alias* Netherbyretoun, Reidhall, Flemington-Flures (i.e. flats) *alias* Netherbyre with one bovate "lie Langrig;" and a dove-cot (columbario), within the barony of Coldinghame.*

I shall only mention two others, and these are inland. On Jan. 8, 1633, Lancelot Pringell de Lees held "Dowcat hill" in the Lordship of Cauldstream.† Dove-cot-mains, between Butterlaw and Hawkslaw in Coldstream Parish is marked in Thomson's Map, 1821. In 1809 it is advertised as a farm on the estate of Darnchester.

Rejecting the inland localities, there are here along the coast from Berwickshire to Eyemouth, a sufficient number of centres to stock or replenish the caverns of the entire coast of Berwickshire. When an old farm place is deserted where pigeons were maintained, they rejoin the wild fraternities; and occasionally wild birds are likewise induced to join the tame communities from the outside, thereby showing no dislike to each other; and such stray birds are sometimes shot to preserve a breed uncontaminated.

I have not a special list of the "Coves" and rocks in which pigeons at present breed, on the Berwickshire coast. The numbers are kept pretty well down by boys and shore-shooters. Their most westerly haunts are in the crevices of some precipitous rocks on Oldcambus West Mains farm, a little to the east of St. Helen's Church; here there are only a few pairs.

In the Swallow Craig Cove, more to the east, there are several nests in the ledges, as well as in the higher rocks; and then again at Siccar Cove, the interior is not only tenanted, but there is a much safer retreat in the gaps among splintered rocks outside the cavern, on the eastern side of the Cave, which are inaccessible. East from Redheugh, among the clefts of some perpendicular greywacke rocks near Windielaw Cove, the best peopled resort of wild pigeons, and the least disturbed, on this part of the

* Retours, Berwickshire, No. 36. † Ib. No. 187.

coast is situated. The Rammel Cove, both in the dark interior, and in the adjacent cliffs, maintains a few pairs. Between it and Fastcastle a few birds may be observed to sally out, as one walks near the edge of the grey cliffs; but there is a more numerous settlement in some of the coves and rocks below Fastcastle, which can only be reached by a long detour. The birds being dependent for food on cultivation, the coves between Fastcastle and St. Abb's Head are probably not so populous where the arable ground is reduced to a narrower belt. At St. Abb's Head they people nearly every cave, and several of the rocks, but according to Mr Hepburn, chiefly resort to the rocky caverns in East Hurkers cliff, and the coves of Harelaw and Peticowick. (Hist. Ber. Nat. Club, III., 72). There is a "Doo Cove" between Scout Point and Horse's Head, in the line of precipices between Eyemouth and Burnmouth. The Pigeons' Cove within the Berwick Boundaries is well-known.

In severe winters they resort to the stackyards, and even consort with the poultry. At Penmanshiel, long ago, I have seen the ridges of the out-houses occupied with hundreds of some of these foraging detachments in line; and sometimes they would induce the birds of the place to accompany them, which never returned. In open winters they feed in the clover fields; and are most persistent visitants to newly sown, or freshly sprung wheat-fields, and as spring advances, to those of oats and barley, and are very ready to pick up clover seeds, if not well covered in. As soon as the crop ripens on the rocky knolls, they point out the fact to the jackdaws; and they are greedy feeders on the seeds of vetches, peas, and beans. They require to be shot, as mere gunpowder is no scare to them.

Note on a Spider (Meta Menardi, Lat.) new to the district.
By GEORGE BOLAM.

ONE day towards the end of March, 1888, while turning over some large stones at the bottom of the cliff running along the coast below Lamberton Shiels, about four miles to the north of Berwick, I displaced a large slab of Old Red Sandstone and disclosed in the face of the rock a small rugged cave, from the roof and sides of which hung tangled masses of roots and grass. Suspended by a strong silken cord to one of these hung a very conspicuous white cocoon, in size larger than a blackbird's egg, and which proved on examination to be full of small young spiders.

The unusual size and snowy whiteness of the cocoon, as set off by the dark recess in which it hung, could not fail to have attracted the attention of the most casual observer; and I had little doubt, when a few minutes later a large spider made its appearance creeping up the side of the rock, that I had found the architect of this beautiful home and the parent of the numerous progeny.

The cocoon after being duly admired was left alone, but the spider I boxed and sent on next day to our Secretary, Mr Hardy, from whom I received the following interesting communication regarding it, and from which it will be seen that the species is new to the district. Mr Hardy writes:—"The spider is a new one to the Fauna, which is fortunate. There is a nearly allied species, *Epeira antriada*, which I beat from Ivy bushes. This one according to the Rev. C. Pickard-Cambridge, is *Meta Menardi* of Latreille (Latr. Gen. Crust. et Ins. t. i. p. 108) which is *Epeira fusca* of Blackwall. Mr Cambridge says 'I have received it from Aberdeen, and also found it myself at the Trossachs, and we get it also now in Devonshire.' "

"I have not a description of it, but I have Mr Blackwall's notice in the 'Ann. of Nat. Hist.' "He gives for locality, caves, cellars, overhanging banks and other obscure places constitute the principal haunts of *Epeira fusca* in North Wales. In autumn the female fabricates a large oviform cocoon of white silk of so delicate a texture that the eggs, connected together by silken lines in a globular mass of $\frac{1}{4}$ th of an inch in diameter, may be seen distinctly within it. Its transverse axis measures about $\frac{1}{10}$ ths, and its conjugate axis $\frac{1}{8}$ ths of an inch, and it is attached by numerous lines, generally forming a short pedicle at one extremity, to the walls or roofs of the places it inhabits. The eggs which are yellow and spherical are between 400 and 500 in number." It was M. Koch who separated this and *Epeira antriada* from the genus *Epeira* and formed with them the genus *Meta*. He also removed them from the family of *Epeiridae* to that of *Theridiidae*—(Ann. Nat. Hist. Vol. x., Ser. 2., p. 186;) see also Mr Blackwall's first notice of the species, Trans. Linn. Soc. xix., pp. 127-8, where he states that he found it "in Derbyshire and Caernarvonshire."

The description of the cocoon given by Mr Blackwall, as well as his note upon the haunts of his *Epeira fusca*, correspond exactly with that noticed on the present occasion; the only difference being that in this instance the cocoon contained young spiders instead of eggs, this giving it, on closer examination, a yellowish centre which very forcibly suggested the yolk as seen through a white egg.

The old spider may be roughly described as being of a rich deep brown colour, with very long black legs, broadly banded with rings of dull amber, and covered with long and conspicuous black hairs. In size it exceeded a threepenny-piece and was altogether too striking looking an insect to be easily passed over, or carelessly thrown aside.

Rainfall at Glanton Pyke, Northumberland, in 1887, communicated by FREDK. J. W. COLLINGWOOD, Esq.; and at Duns, Berwickshire, communicated by CHARLES WATSON.

GLANTON PYKE.

	Inches
January	1.59'5
February	0.76'5
March	1.95'5
April	1.03'0
May	1.82'0
June	0.44'0
July	2.65'0
August	1.13'0
September	5.26'5
October	2.22'5
November	3.90'5
December	3.43'5

Total 26.21'5

RAIN GAUGE:—Diameter of Funnel, 8 in.; height of Top above ground, 4 ft. 3½ in.; above sea level, 517 feet.

DUNS.

	Inches
January . . .	1.30
February	0.49
March	1.03
April	1.15
May	2.34
June	0.54
July	2.86
August	1.59
September	4.36
October	1.85
November	4.22
December	2.55

Total 24.68

RAIN GAUGE:—Diameter of Funnel, 8 in.; height of Top above ground, 6 in.; above sea level, 500 ft.

Note of Rainfall at West Foulenden since 1872.

	RAINFALL.		TEMPERATURE.	
	Inches.	Hund.	Max.	Min.
1872—from 9th May—8 months	28	90		
1873	26	10	88	20
1874	27	90	79	4
1875	25	70	74	8
1876	37	70	84	18
1877	38	10	64	20
1878	29	60	80	3
1879	28	20	68	0.5
1880	24	60	81	10
1881	30	60	89	0.5
1882	32	80	85	1
1883	26	30	78	12
1884	23	41	87	15
1885	24	37	86	15
1886	29	33	87	7
1887	22	5	88	19

Note of Rainfall and Temperature at West Foulden during 1887. By H. H. CRAW, West Foulden.

Height above sea level, 240 feet. Distance from sea at Berwick six miles.

			RAINFALL.		TEMPERATURE.	
			Inches.	Hund.	Max.	Min.
January	..	..	1	50	59	19
February	..	..	0	43	58	19
March	..	..	1	50	63	22
April	..	..	0	89	65	26
May	..	..	2	3	74	30
June	..	..	0	45	88	36
July	..	..	1	98	84	40
August	..	..	2	9	84	39
September	..	..	4	11	74	31
October	..	..	1	35	65	27
November	..	..	3	57	52	24
December	..	..	2	15	49	22
Rainfall for twelve months			22	5		

Note of Rainfall and Temperature at Rawburn during 1887.

Height above sea level, 920 feet. Distance from sea at Berwick 24 miles.

			RAINFALL.		TEMPERATURE.	
			Inches.	Hund.	Max.	Min.
January	..	..	1	30	50	21
February	..	..	0	70	52	20
March	..	..	2	0	54	16
April	..	..	1	60	58	27
May	..	..	2	20	62	27
June	..	..	0	20	86	35
July	..	..	2	40	78	36
August	..	..	2	10	66	37
September	..	..	4	50	66	29
October	..	..	1	80	67	23
November	..	..	4	40	49	20
December	..	..	2	10	48	21
Rainfall for twelve months			25	30		

Meteorological Observations at Marchmont House.
By PETER LONEY.

Latitude 55° 43' 30", Longitude 2° 25' 20", Elevation 500' above the sea.

MONTH.	RAINFALL.			Number of days on which '01 or more fell.	Sunshine in hours.	Black-bulb mimum.	Number of de- grees of frost.	REMARKS.
	Tl. depth inches.	Greatest fall in 24 hours.						
		depth	Date.					
Jan.	1·88	·30	7th	17	36 ⁰	9 ⁰ on 17th	23 ⁰	Dry and frosty.
Feb.	·57	·20	2nd	8	70	8 ,, 11th	24	Very dry, frost and fog.
March	2·41	·48	11th	16	117 ¹ / ₄	13 ,, 17th	19	Frost & snow, farm work much behind.
April	1·18	·25	20th	15	136	11 ,, 5th	21	Frost and snow, work far behind.
May	2·62	1·23	19th	20	134 ¹ / ₂	18 ,, 5th	14	Better weather, work forward.
June	·62	·38	4th	7	208	23 ,, 1st	9	Good dry weather.
July	2·21	·50	4th	17	151 ¹ / ₂	25 ,, 18th	7	Good weather, sun wanted.
Aug.	2·59	·83	17th	13	164	27 ,, 3rd	5	Good, grain doing well.
Sept.	4·36	·80	1st & 4th	20	95 ¹ / ₄	22 ,, 28th	10	Wet, early harvest bad.
Oct.	1·85	·61	8th	14	106 ¹ / ₂	16 ,, 22nd	16	Good harvest weather.
Nov.	4·35	·91	6th	23	27	15 ,, 16th	17	Wet and cold snow.
Dec.	2·36	·30	15th	21	20 ¹ / ₄	12 ,, 11th	20	Dry and frosty.
Totals	27·00			191	1266 ¹ / ₄			

Rainfall at Belle Vue House, Alnwick, Northumberland, in
1887. By JOHN JAMES HORSLEY.

			GREATEST FALL				Number of Days
			TOTAL DEPTH.	IN 24 HOURS.		on which '01 or	
MONTH.			Inches.	Depth.	Date.	more fell.	
January	..	..	1·14	0·21	11th	18	Days
February	..	..	0·45	0·20	3rd	5	„
March	..	..	1·36	0·19	15th	16	„
April	..	..	0·90	0·21	20th	11	„
May	..	..	1·36	0·56	20th	11	„
June	..	..	0·32	0·24	4th	3	„
July	..	..	2·66	0·93	4th	12	„
August	..	..	1·74	0·49	17th	10	„
September		..	4·65	0·83	12th	19	„
October	..	..	1·59	0·26	28th	14	„
November	..	..	2·96	0·38	5th	18	„
December	..	..	2·47	0·52	15th	12	„
Total			21·60	5·02		149	Days

Rain Gauge—Diameter of Funnel, 5in.; height of Top above ground, 1ft.; above sea level, 303ft.

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General Statement.—October 1887.

THE INCOME AND EXPENDITURE HAVE BEEN :

INCOME.

				£	s.	d.
Arrears received	..	..	..	31	17	6
Entrance Fees	..	..	..	10	0	0
Subscriptions ..	..	..	..	144	10	0
Proceedings sold	..	..	..	1	9	0
				<hr/> £187 16 6		

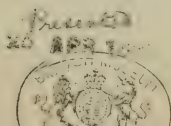
EXPENDITURE.

Balance due Treasurer from last account				19	19	11
Lithographing	..	..	..	23	6	6
Printing ..	..	..	..	99	9	7
Expenses at Meetings	..	..		10	4	0
Postage and Carriage		25	10	7
Berwick Salmon Company		7	5	10
Balance due from Treasurer		..		2	0	1
				<hr/> £187 16 6		

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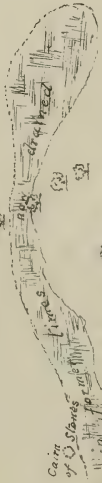
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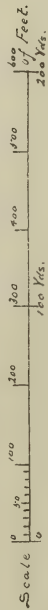
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The de la Bate
or
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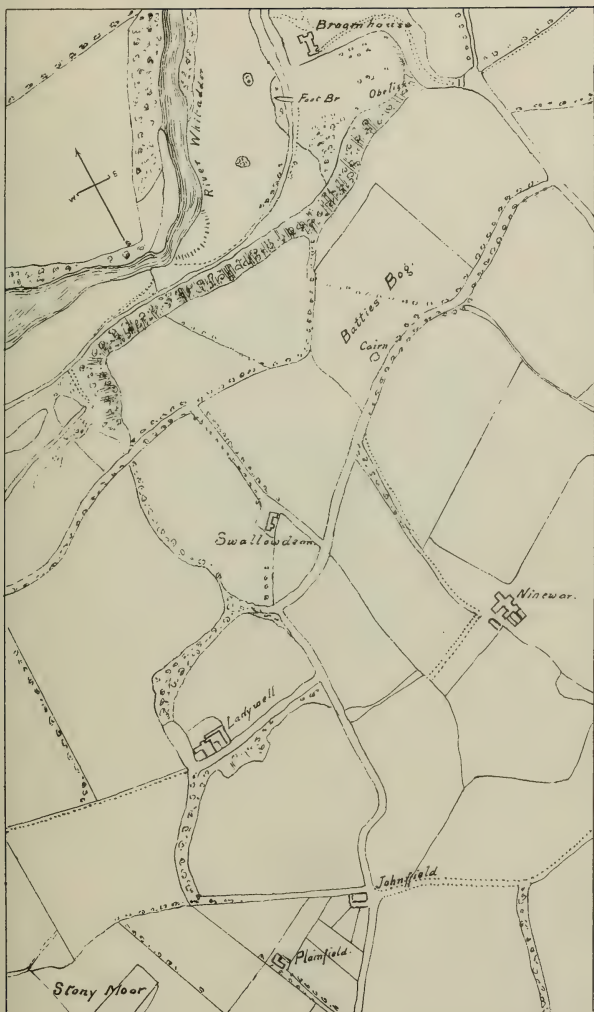


Bog
Duns and Edrom Parish.
March between

D U N S P A R I S H



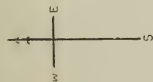




J. MURRAY, LITHO EDIN^a

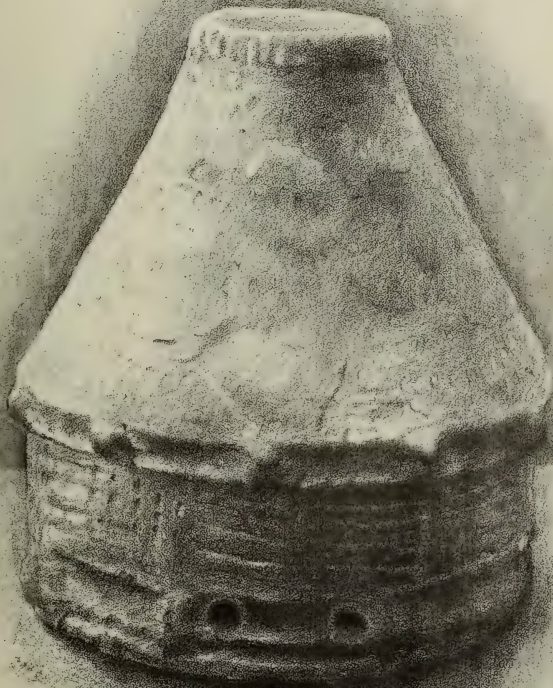
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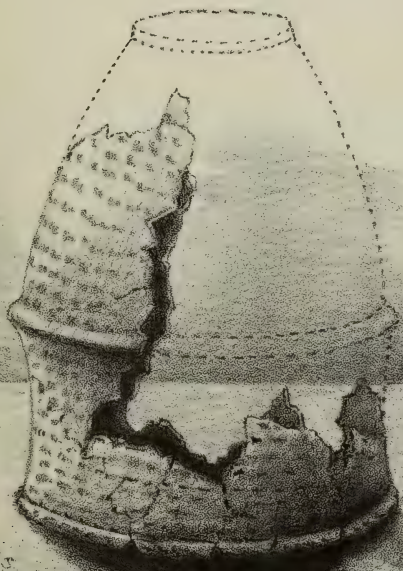
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Fig. 1

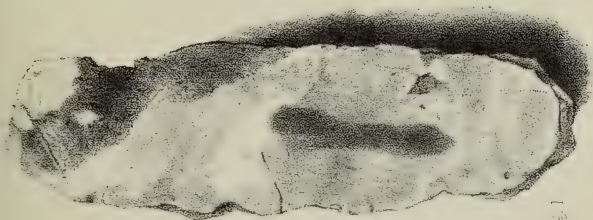


Fig. 2

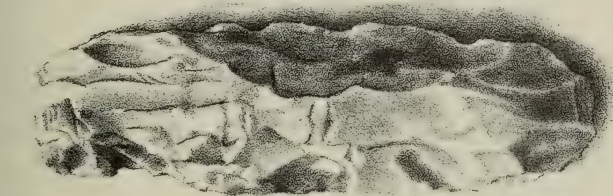


Fig. 3

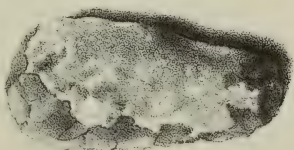
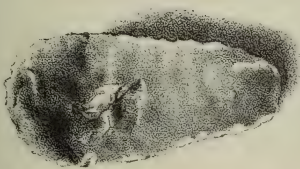
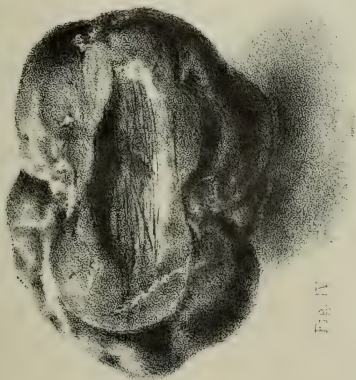
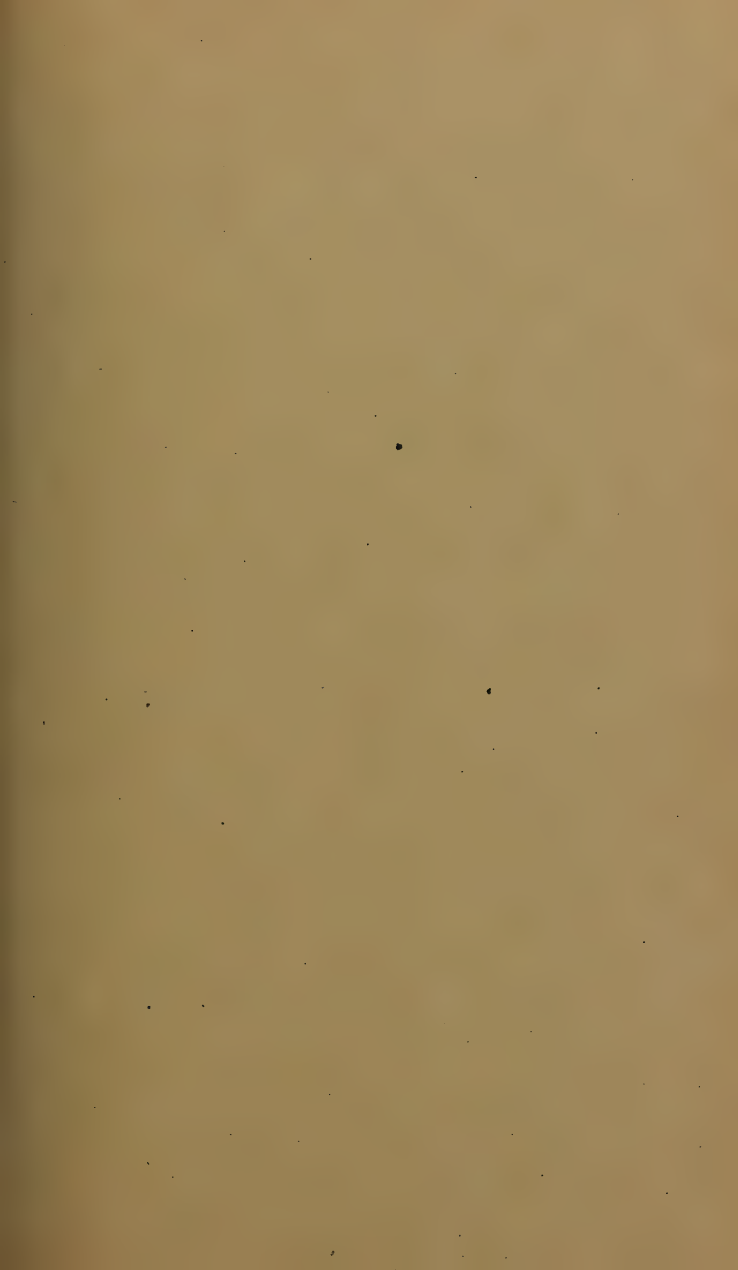


Fig. 4







5 MAR 90



Photograph by Adamson. Negative from a Photograph by George F. Jones.

Yours truly
R. B. Middlesmas

History of Berwickshire Naturalists' Club, Vol. XII.

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PROCEEDINGS

OF THE

BERWICKSHIRE NATURALISTS' CLUB.

Address delivered to the Berwickshire Naturalists' Club, at Berwick, October 10th, 1888. By MATTHEW T. CULLEY, Esq., of Coupland Castle, President.

GENTLEMEN,

IN returning thanks to you for the honour you have conferred upon me in placing me in the position of your President, I must refer to the melancholy event which led to my receiving this distinction. I mean the sad and sudden death of the President-elect, the late Mr Cadogan, which was a very startling blow to all his friends. Mr Cadogan was universally esteemed both as a country gentleman and a county magistrate. He had been a member of our Berwickshire Naturalists' Club for twenty years, and would have worthily filled the office of President. I am sure he is deeply regretted by all who knew him, and his loss is the more striking, as there was every reason to suppose he might have lived for many years to come.

I find on referring to the addresses of former Presidents, that in old days a principal duty of the President in the Annual Address, was to recapitulate for the benefit of the members assembled, the events of the meetings that had taken place during the year. That however was in the days when we had no Secretaries who devoted themselves to the affairs of the Club like the late Mr Tate and the present Mr Hardy. And long may he be the *present* Mr Hardy, for what the Club would do without him I do not

know. No doubt Mr Hardy has notes of all that has occurred at the meetings of this year, which he will probably mention briefly now, and afterwards publicly at length in the Transactions. I shall briefly refer to the meetings.

The Annual Meeting of last year was held at Berwick on October 12th. I was not present, and know nothing of the proceedings except that the late Mr Cadogan was appointed President. On his unexpected and lamented death I was asked to fill the vacancy, as according to our usual practice the Presidency fell this year to Northumberland. I fear I have no qualification for it except being one of the very oldest members of the Club—in fact within a very little of the top of the list; but I thought it would be uncourteous to decline a compliment thus offered. I fear too I have never been a regular attender at the meetings, and even this year as President have missed some meetings, but that I hope to explain afterwards.

Of the five Field Meetings of the season I have only managed to attend two. The first on May 30th, was in the lovely Vale of Whittingham, in Northumberland. For the events of this day I must refer you altogether to Mr Hardy, for at the eleventh hour I found I had to take the chair at a political meeting that very day, and had I attended our Club meeting, would have been obliged to leave in the middle of the proceedings. The Meeting at Kirknewton on June 27th, was more or less of a success, as the day was fair, but the higher hills were so enshrouded in mist that an expedition to Cheviot, which no doubt was the principal attraction, was out of the question. However, the whole of the vale in and around Kirknewton is extremely picturesque; in fact I rather wonder why this part of our district is not more often visited by the Club. Breakfast and dinner were served very satisfactorily under a tent, on a particularly pretty spot at the junction of the Colledge and Bowmont. By kind permission of Alexander Thompson, Esq., of Kirknewton, a large party explored the bases of the hills by Heathpool and the pretty little water-

fall of Heathpool Lynn; some examined the church at Kirknewton, which though modern, contains some remains of antiquity, notably some tombstones and a very singular piece of sculpture; and in the afternoon the bulk of the company did me the honour to visit my old house, explore its antiquities, and partake of luncheon. We were also honoured by the presence of our High Sheriff for the year, Mr Carr-Ellison. As to the Jedburgh Meeting in July, I must again refer you to Mr Hardy. Fortunately the day was fine, and here one may remark that the Club have been extremely fortunate in their days, as this has been an exceptionally wet, cold, unsummerlike and disagreeable season; yet never have the Club Field Meetings fallen on an unenjoyable day. The next Meeting and the principal one of the season was at Holy Island on August 31st, and was a joint meeting with the Newcastle Society of Antiquaries and the Durham Archæological Society. The principal object was to inspect some extensive excavations recently made in the ruins of the Priory by Sir William Crossman, which were very interesting. The gathering was a large one, and the day beautifully fine. Sir Wm. Crossman entertained a large party of the visitors at luncheon, and Canon Greenwell and Mr Hodges lectured—the former on the founding of the Christian church at Lindisfarne; the latter, at great length, on the architecture of the old Priory. The Meeting at Canonbie must have been a delightful one—such a lovely country and such classic ground in Scottish history! I sincerely thank the Rev. Dr Snodgrass, minister of Canonbie, for his kind endeavours to make all easy for me if I were there, but alas! Canonbie is far from North Northumberland, and had I gone I should not have been back in time for two meetings, one of them rather important, which it was my duty to attend on the following day. So again I must refer to Mr Hardy, who attends all our meetings in the most indefatigable way.

Of late years some very learned addresses have been given by retiring Presidents. This example I shall not attempt to follow, being noways learned in Natural History. But

whether or no one is so, the excursions of this Club must afford very great enjoyment to many individuals from the variety of pleasing scenes which the Club visits, and the variety of pursuits that the Club encourages among its members. In the first instance no doubt Botany, Ornithology, and Entomology were the main objects of the Club; but as the Natural History of the district, extensive as our wanderings are, is pretty well worked up, so many other subjects have come on for research and notably Architecture, Geology, and Archæology. The history of the three counties to which our rambles principally extend is being well worked up by the Club, and in time our Transactions will afford a pretty complete history of every parish and hamlet in Berwickshire, Roxburghshire, and North Northumberland. It is right and fitting that the history of such a district should be thus chronicled, for surely no part of England or Scotland is richer in history of its own than this Borderland, where scarce any hamlet is without its legend or connection of some kind with the stormy scenes of the past; nor is any name of note or of any degree of antiquity without its share of those troubled times.

It is curious to note the difference in bulk of the Transactions of the Club now and in its early days; one small volume contains the Transactions of seven or eight years up to 1850 or even later. Now those of three years form a bulky volume. I well remember at an Annual Meeting some ten years ago—perhaps more, perhaps a little less—Sir Walter Elliot encouraging all members to contribute what they could to the work of the Club so as to swell its publications, asserting that every one could add some piece of information to the general stock. Well—his advice has surely been followed. Our Transactions are so voluminous now that I, at any rate, can scarcely find time to read them. Do not think that I am finding fault; the bulk of the information is both valuable and useful, and to add to what I said above, our Transactions in time will form a sort of Cyclopædia of all information relating to our district, including Natural History, Geology, Archæology, and our

ancient Border History, such as does not exist in any other district that I know of.

As I remarked before, the Club has indeed been fortunate as to weather on the days of meeting, for we have passed, or perhaps more properly, are passing through one of the strangest seasons possible. Last summer, you will remember, was remarkable for heat and a drought so intense as to cause in many places a serious want of water and considerable danger of the drying up of springs. The winter, as far at least as North Northumberland is concerned, was for the most part singularly mild, so much so that in February water-flies came out in great abundance on the Glen, and the trout rose freely at them. In consequence the trout, when I began to fish for them at an unusually early period, rose quite freely at the artificial fly, and were fat, bright-coloured, and good to eat, which is seldom the case in our smaller streams before May. In March there was a dreadful snowstorm, reminding one of the blockade in March 1886—fortunately it did not last so long. Then followed a spring and summer the coldest, bleakest, and most sunless that I should think any of us almost ever saw. May and June were dry as well as cold, and vegetation was almost at a stand-still. July was very wet, and so was part of August. Fortunately we were spared the inundations that prevailed in many other parts of England and did great damage, but in spite of the cold the rain produced the most extraordinary growth in almost every kind of vegetation. Grass which was scarcely above the ground in June yielded an unusually abundant crop of hay in August, and corn, which in June looked as if it would never struggle into ear at all, is now in many places the largest crop that has been seen for years, and as you all know the difficulty now is, what must always attend a late harvest, the difficulty of getting it housed. However, we may be heartily thankful for this growth, late as it is, for it could scarcely have been expected; and we may be thankful for the rain too, for had it not come, the consequences of last year's drought would have been serious in many places. The growth of trees and

shrubs after the rain came was truly remarkable, and garden flowers ran to stem and leaf with the most extraordinary rankness and luxuriance. My own garden resembled a fox-covert more than anything else! Sweet Peas grew 10 or 12 feet high, and sunflowers got far beyond any poles we had to tie them to, while their heads got to such an enormous size that they simply broke their own necks and fell off.

Now, my friends, when I have had to listen to a discourse of almost any kind, I have generally estimated its value according to its brevity; I shall therefore not inflict any more of my discourse upon you. By way of endeavouring to be not an absolutely useless President, I hand a few Natural History Notes to Mr Hardy for the Transactions of this year, and I produce a fac-simile (as near as may be) of one of the enormous leaves that grew on our oaks when recovering from the effects of frost in the terrible winters of 1878-9 and 1880-1. Mr Hardy will remember my writing to him on the matter. The present specimen is the largest I found, and measured 16 inches by 7 when dry.

I beg to propose Mr John Scott Dudgeon of Longnewton as our President for next year, hoping he will be a better one than I have been.

I beg to thank you for the honour you have done me, and also for the patience with which you have listened to me.

Report of the Meetings of the Berwickshire Naturalists' Club, for the year 1888. By JAMES HARDY.

BRIDGE OF ALN, EDLINGHAM, LEMMINGTON, BROOMPARK,
BOLTON, SHAWDON.

IN order to accommodate Mr Batters's valuable "Marine Algæ of Berwick-on-Tweed," it is necessary to restrict the details of Club Meetings for this year, reserving Architectural, Historical, or Genealogical notices to be worked up eventually into special papers to appear as opportunity arises, and where necessary to be illustrated with cuts and engravings. The old accounts of many of the localities in the Club's district are thread-bare, and require fresh researches to rehabilitate them. It is to be hoped that we may yet have many such investigations to record, not as a summary merely, but bearing the marks of painstaking, and elaborated from original authorities.

On the 30th May the Club assembled on new ground. A long walk had been staked out, but the distances having been previously tested, were known to be within the compass of ordinary physical exertion. The thanks of the Club are due to Mr James Thomson who acted as guide, and planned the route; and to Mr R. G. Bolam and Mr William Thompson, Shawdon, who smoothed the way in various other respects.

The breakfast for those who had travelled from a distance was at the Bridge of Aln, a very comfortable hotel. The side-board and the breakfast table were decorated with early garden flowers of extreme rarity, brought by Mr and Mrs Muirhead. In front of the Inn a fine view is obtained of the Glanton Pyke mansion, with its broad green pastures descending in front, and the bright house backed by trees. Mile is on the top of the hill at the left side, and the Pyke farm on the other. The extensive quarry of white sandstone on the western Glanton hill, instead of being a blemish, wears the aspect of a great stone terrace or natural crag. The school-house and village line the roadway drawn across the base of the swelling sheltering ridge. Glanton Pyke with its double peak and its smooth green outline, is one of the most marked features of the district. The intervening ground between us and the village is fully cultivated, and regularly sub-divided. In the background lie the Prendwick sub-conical heights, still dappled with their unrenovated patches of fox-

coloured brackens, and scattered clumps and dots of dark furze; as well as brown Dunmore; the grey Cunion Craggs, and the lower Ingram hills; Shilmore capped by a cairn; great Cushat Law; Hogden standing apart, with its abrupt front, and its depressed back stretching away to combine with the mossy swamps overtopping lone Milkhope. Cheviot lies a long way off.

Mentha arvensis was observed in the fields adjacent to Bridge of Aln; the ditches and swampy ground produce much *Juncus glaucus*; the Aln itself is sometimes crowded with the Bur-reed (*Sparganium ramosum*), or bordered by thickets of *Epilobium hirsutum*. The willows are the Bay Willow (*Salix pentandra*) and the Osier, (*S. viminalis*).

Across the fields about half a mile from Bridge of Aln stands Thrunton Mill, now fallen into disuse. A portion of an old broken mill-stone of large grit lying about the place has carved on it behind the hollow for the spindle, a *cross moline*. *Moline* is the crossed iron that supports the upper mill-stone. It is curious to meet with this heraldic symbol on the stone at a place so seldom visited. Still more to the west in a grass field skirted by a fir planting rises the copious spring of St Ninian's Well, an unfailing contributory to the mill-pond. It has been faced with stones, and boils up with great force, casting up little whirls of sand; and there is a fine silvery sand at the bottom, and all along its Forget-me-not (*Myosotis*) margined strand. The western Roman Causeway passed a little way above the well. The bronze weapons, figured in the Club's Proc., XI., Plate VII., were discovered in a field higher up (the Coldwell field) nearer the Wooler road.

The company took the footpath by the side of the Coe (Cove) or Jackey's Burn, a tributary of the Aln, to Low Learchild, and then obliquely crossed by an ancient track, the grassy and whinny hill side, till it joined the public highway at Edlingham Hut. All the cross-roads of the country meet at Low Learchild, which was once a considerable place, as is plainly evident by the heaps of turf and stone not yet cleared away. A vacant green space surrounds it, in which are remains of old earthen enclosures for sheep or cattle, for it was liable to be swept by Border forays, or thievish inroads even in times of peace. In 1552 there was a nightly watch kept by two men between Newton and Lierchild, while other two perambulated the distance between "Liersheld and Bawton." It was ravaged during a period of truce, in

winter 1585-6, along with Lamendon, "and all the country besides." Learchild, i.e. the Laverock or Lark-shieling, was the "vill beyond the moors," which Gospatrick, out of Beanley barony, conferred as part of the dower of Juliana his daughter, when married to Roger de Merlay, lord of Morpeth. One of these lords of Morpeth did not disdain to act as seneschal to his kinsman, one of the Earls of Dunbar.

The burn is here traversed by a ford for the accommodation of a road from Thrunton. This road occupies, alongside a hedge-row mound in a field, a raised causeway of small coble stones of porphyrite and sandstone, that have the look of having been collected from the adjacent lands. This does not however coincide with the line of the Roman (or Devil's) Causeway as laid down in the Ordnance Maps, which passed the burn here between two modern fords, and crossed this causewayed road obliquely. The road up the slope appears to have been the outlet for the traffic centred here. Old people recollected the trains of pack-horses that crossed the hills by this route, sometimes as many as 23 in line being seen at once. It is in the direction but does not follow the track of the Roman road.

Jacky's burn at the ford runs in considerable volume, and is a trouting stream. It is narrowly skirted with a line of alders, young and old (one of the latter a fine tree with a bulky stem) Guelder rose, heckberry, brambles, scrog-apples, oaks, hazels and wild goose-berries. The upper part of the valley is partly occupied by Broad Wood and its offshoot Allerton Wood, belonging to Sir John Swinburne; and again above that by Roughley Wood, from which fringes of native trees or bushes, expanding or contracting in width, accompany the stream a far way up towards the Coe crags, and into a defile beyond, where a green hill near Lorbottle closes up the gap. The rounded heads of these Coe crags stand grandly out with shadows in their fissures, and wear a solemn aspect in a gloomy day; and are altogether more impressive than the opposite lower Thrunton series; which owe much of their dark hue to their massed coniferous trees. It was very desirable that these secluded woods should have been botanised on this occasion, but subsequent wet weather prevailed. As seen from the public road shortly after, Roughley wood showed expanses of Herb Mercury, *Ajuga reptans*, sprinklings of *Epipactis latifolia*, wild Harebells (*Scilla nutans*) and Primroses in abundance. A month

after Mr William B. Boyd and two other members gathered *Epipactis latifolia*, and *Paris quadrifolia* in profusion here. The Herb Paris is recorded for Rugley Wood, and extends across the borders to near Jedburgh. It is more plentiful on the Coquet and in the south of the county. Roughley Wood used to be famous for hazel-nuts, and was well known to the Whittingham children, who came in the "nutting" season provided with "pillow-slips" to carry home the spoil.

The view of the well cultivated and ornamentally tree-clad vale of Whittingham, and the encircling hills, backed by the Cheviots, is one of the most enchanting prospects in North Northumberland. The Hut (422.7 feet of elevation) belongs to the vicar; passing by it, the road skirted the top of Birsley Wood; which is partly of planted trees amidst native scrub. Oaks and ashes may represent the introduced trees; hazel and much bird-cherry or heckberry the latter class. The trees were much thinned by the great October gale of 1881. Inside the wood is full of Herb Mercury, and when the Club visited it, the Wild Hyacinth or Harebell was in one brilliant sheet of blue, calling forth general admiration. The soil is cold and clayey, and being undrained affords little reward to the cultivator. The grass is thin and wiry, mostly *Fiorin* (*Agrostis stolonifera*). From this elevation, the once fine mansion of Lemmington Hall is seen to great advantage, and occupies a finer position than any of its surrounding and newer built rivals. Opposite is the great ridge of brown moor, speckled with stones and crags, and beds of foxy-tinted ferns, and little bowers and lines of native trees—birches, mountain-ashes and whitethorns—in sheltered corners, or in the gullies whence the mountain streams break forth, when the snow thaws or during sudden rain-falls, in torrents—but at present only as trickling "letches." Sheep wandering over the heath, or resting in its concavities and dimples, impart a sense of animation to the scene, but are so thinly distributed as almost to be swallowed up in its amplitude. Very dreary in winter it must be to live here.

Edlingham was once a village of greater dimensions, and is said to have reached to Newton, when it bore the epithet of "Long," like numerous other assemblages of rural dwellings in Northumberland situated alongside public ways. The vicarage—in a position to which one has to look up—has the front muffled in ivy, through which the windows like so many blinking eyes,

look out on the cheerless brown waste; but it is well screened with Lombardy poplars, ashes, limes and other trees; and flowers thrive within the sheltered circuit, especially phloxes in autumn. The grassy field outside is of old culture, with elevated wavy ridges. Lower down, at a wide interval, is the church—so very grey and old-like—with triangularly peaked tower, and low roof and encircled by a grass-grown graveyard, seldom disturbed, as is obvious from the paucity of tombstones; for people on these outskirts of cultivation, amongst pure air and untainted springs, are doubtless long lived and healthy. Descending still farther the stately old castle still stands erect, although in ruins, upon its own mound of vantage, and environed with decayed ramparts and filled-up fosse. It was more of a mansion house than a fortalice so far as history is concerned. Its whiter stone betokens its juvenility compared with the age of the venerable ecclesiastical edifice, but even upon its walls and battlements the storms of centuries have beat. There was a castle here when Sir John De Felton died in 1396; but from a large S. incised near the eastern doorway, there is a presumption that the Swinburnes had some hand in its enlargement or repairs. The pulling down by mischievous boys of its curious fireplace has been long deplored. As yet no effort has been made for its re-erection, which might be effected at a moderate cost.

Before the arrival of members from the north, the castle and church had been surveyed by those who halted here on their arrival from Alnwick. A paper on Edlingham Manor was read by the Secretary in the old grey church. In this it was shown that this district was in the Saxon period, the private property of the branch of the race of Ida of Bamburgh, represented by Ceolwulph, who afterwards became king of Northumbria, and presented his lands, or a certain portion of them, to St. Cuthbert and the monks of Lindisfarne; that William the Conqueror bestowed it on the restless Gospatrick, the Earl, from whom it descended to his son Edward, whose posterity held it till the reign of Edward II. Subsequently it was transferred to the De Feltons, who were royal favourites; passed by marriage to the De Hastings, and finally to the Swinburnes, in whose ownership it still principally continues.

The church also has its history. It was founded by Gospatrick and his children. Competitive claims to its patronage and tithes, between the rival monasteries of St. Albans and Durham, form

the main ingredients of its uneventful story. Degrading superstitions were rife here to a late period; and that some of its old women escaped being burned as witches was next to a miracle. The chapelry of Bolton, although in another barony, was a pendicle of this church, and still pertains to the benefice.

After satisfying their curiosity the main body of the members taking the church foot-path, crossed the field and the Edlingham burn, here formed of the combined Wandy House and Rimside burns, and a multiplicity of birch-margined sykes, to Lemmington Hall, passing below Overthwarts farm; and while on the way, to quote our reporter, "admiring the extensive and varied views that frequently burst on their gaze, examining the remarkably clear signs of ancient cultivation visible to the right of the path whose track they followed, and ultimately arrived at the splendid mansion which has unfortunately been allowed to fall into an absolutely ruinous condition."

Others drove by the Alnwick and Rothbury turnpike. Before parting Mr William Thompson and I called upon the venerable and learned vicar, the Rev. M. H. Buckle. Mr Buckle had hospitably provided refreshments for callers, but unfortunately members were too much bent on accomplishing the day's errand to linger; and I am afraid that we were almost the sole participants. At the outset by the public road, some fine green slopes sweep up to the height (which I find by Ordnance Survey is 704.2 feet above sea-level) on which Edlingham Newton stands. On this ridge, the Scottish invading army under Field-Marshal Lesley, and his subordinate veteran officers, lodged for the night of February 24th, 1641, having marched that day from "Branton Field," on the Breamish. On the 25th they proceeded to Netherwitton; on the 26th to Kirkley; and on the 27th encamped on Heddon Law, and occupied Newburn; where next day, 28th, they crossed the ford on the Tyne, and routed the undisciplined Royalists on Stella Haugh, who retreated to Durham on the 29th. This was the line of the Scots' march. Historians confuse Edlingham with Eglingham. The route by Newburn ford was subsequently utilised by Cromwell. It offered no obstacle to a resolute leader. Newton Peel is now a thing of the past.

There is a British camp on Newton hill; and a number of coins was disinterred in cultivating a field, now clothed with grass, near Edlingham. There are remains of native wood by

the Wandy House and Rimside burns that remain unexplored ; also a plot of ashen wood called the Bottle Wood, which Widehope Letch traverses, which has its source near the Black Lough. Not far above it, and adjoining the public road, are the Senna Wells of salubrious notoriety. Passing to the eastward the road crosses the Swinhope Letch, winding its way through birchen groves. It obtained its name, which points to a past age, from the herds of swine that we know from the Pipe Rolls were kept in the woods by the ancient villagers of Edlingham. Then the Corbie or Raven Letch is passed, on which are a romantic crag and water-fall. Instead of the Raven, the Rock-dove, or Wild Domestic Pigeon, now nestles there. Among the trees above the bridge the Grey Flycatcher has its summer home, but their chief warbler is the Chaffinch. Higher up near the moor edge are some old borings for coal. At about the height of 671 feet, before reaching the Pit-houses, we turn down the bank to Lemmington, alongside an old fir plantation in which much good timber had been prostrated in the 1881 gales, it being much exposed. Before Lemmington was reached, the company were almost prepared to depart. There were some fine trees once in the park, many of which had succumbed to violent winds. The height is about 300 feet.

The chief point of attraction from an antiquarian point of view in the place is the old peel tower, which was incorporated with the modern hall. The Secretary then read a paper on Lemmington, whence it appeared that it was held of the Cospatricks or Beanley barony, by a race of native owners, without surnames, except that they were the sons of their fathers. This primitive mode of distinguishing each other, they had abandoned in the reign of Edward I., when they had assumed the name of their possession which was then Lemokston. The name is as old as the age of Henry III. or even earlier. It was possible that Lemoc was the first settler who left his name attached to the lands he had cleared from the waste. Be this as it may, one of the Lemokstons was honoured with burial in Melrose Abbey, and another was Rector or Parson of Duns, and a leading witness in charters of the Earl Patrick of the period, who was doubtless the patron of his Northumbrian retainers, the Lemokstons. Afterwards Lemmington was annexed to Edlingham manor under the De Feltons and the De Hastings, and was then acquired by the Beadnells, who profited by being Church Commissioners at the downfall of the

monasteries. One of them had married a Hastings heiress. This family underwent various vicissitudes, and a whole household of them were tried for murder at the Newcastle Assizes. Falling into difficulties and disgrace, we finally perceive the estate occupied by one of the Claverings for a life-time; and his daughter, by a tradition in the Fenwick family is said to have married one of the Fenwicks, an opulent Newcastle merchant, representative of one of the branches of that once wide-spread race, by whose descendants some of whom were tree-planters, land-improvers, introducers of hot-houses, as well as builders of the newer part of the erections surrounding the old central peel, the estate was held almost to the present time, when it was annexed by purchase to the Shawdon property.

Several of the best hewn and ornamental stones were transferred to Titlington, and some of the carved stones are at Shawdon. One of the capacious fire-places still remains entire. It is quite plain. A drawing of it has been obtained. Several British cists were come upon by the workmen engaged in forming the adjacent plantations; but they were empty. Some massive limbs of oak trees dug out on Overthwarts, when it was recently drained, testify to the ancient sylvan aspect of the country.

The next stage was Broompark, which stands directly opposite Lemmington, on a parallel but lower ridge, within the circuit of a green park and encompassing trees. It is of about the same square form and age as Shawdon and Biddleston Halls. To reach it the Edlingham burn has to be crossed at Battle Bridge. The crossing is at 189½ feet above sea-level. To account for the name a traditionary battle is said to have been fought in the vicinity between the Saxons and the Danes. The Saxons, according to the story, marched from an encampment on Robert's Law in Coquetdale, to repel the invaders, but being vanquished, to escape the more expeditiously cast their upper garments away, on what, from that circumstance is now called, Garment Edge. "Garmintedge Bank" on Low Broompark farm lies at a considerable distance to the west of Battle Bridge, and commences at the S.W. corner of Broompark policy, where the public road between Edlingham and Bolton runs, and terminates near Jackey's Bridge on the Coe burn. The name recalls a road-way of similar designation, Garmondsway, *Via Garmundi*, on the Salters' Road between Billingham and Durham. King Cnut in proceeding on a pilgrimage to Durham came with naked feet

from the place which is called *Via Garmundi*; that is for 5 [in modern measurement 7] miles.* Here *Garmund* is a personal name. *Edge* is applicable either to the ridge or side of a hill. May we not have here a repetition of the Durham name on one of the continuations of the old national track-ways; and may the word here not be equivalent to the hill-edge crossed by the prolongation of the way of Garmund; or may the *edge* not have obtained its name from an ancient owner, whose name was once as well known here as that of his namesake in Co. Durham? The word *garment* for a robe is of Norman origin.

At Broompark the company were shown the library, the tapestry, the paintings, and the skins, horns and other spoils of the chase from India, Chillingham and the Scottish hills; and were most hospitably entertained to luncheon by Major Burrell, the owner of Broompark estate. By Major Burrell's kind invitation, I returned on the subsequent day, and along with Mr R. G. Bolam, examined the valuable library, which is rich in topographical works. Spearman's MS. Notes on Hutchinson's View of Northumberland are preserved here. There is a good copy of Selby's British Birds; also the latest editon of Dugdale's Monasticon; and various early illustrated Latin classics. The selection of several of the books, it is said, had been entrusted to the Rev. James Raine, the historian of North Durham. The family papers are arranged for ready consultation. A pair of fine Red Deer Antlers of great size and development, (some 12 or 13 points) is preserved here, which had been obtained when draining a marsh in the wood behind Bolton Church, in the tract of ground called "the Guards." The gardens and green-houses were also inspected. *Rumex sanguineus* is common in the shrubbery. A vote of thanks was accorded to our entertainer.

Broompark avenue at the bottom is 208 feet high; the road descends to Bolton Bridge on the Aln, to 184 feet, and then gradually rises to 210 feet at Bolton Church. Here the site of the Leper Hospital, founded by Robert de Ros before 1214, an earlier date than that assigned by Mackenzie, was pointed out; also the scene of Surrey's encampment on Bolton Moor, previous to the battle of Flodden. Mile, the Mylo of Hall's Chronicle, where Islay herald passed the night waiting for an interview with Surrey and his captains, has been already alluded to, as situated

* Sym. Hist. Dun. Durham before the Conquest by W. H. D. Longstaffe, F.S.A., Proc. Arch. Instit. 1852, I. p. 67.

to the west of Glanton. This was reckoned by the historian to be "twoo myles from the felde." King John and William the Lion met at Bolton in 1209.

Anchusa sempervirens grows near the road, and the Sweet-scented Violet and *Geranium pratense* occur in the churchyard; there is much *Doronicum Pardalianches* in the policy of Bolton-house. There are also there some stones with carvings on them, not yet examined. Notes on the history and owners of Broompark, Bolton, and Shawdon, have to be withheld for the present.

The term "the Guards" is I find not confined to the green field surrounded by marshes on which stood the Leper Hospital, but extends along the level track traversed by the Brandy or Shawdon burn, which some conjecture to have been an ancient bed of the Breamish, as far up as Shawdon Hall. That a Roman camp ever existed on the much broken surface of the Hospital ground is very problematical. The name may have arisen from its swampy condition rendering it impervious to an enemy, or from some circumstance not known now, during the period of the Border Watches. In 1551-2, the watchmen traversed, as already noticed, the space from Learchild to Bolton, and then the country from "Bowton to Tetlington" was "watched with 2 men nightly, and thereto is appointed Bowton, Aberwyke, and the Woddhall." (Nicolson's Border Laws, p. 193.) The main passage of the Aln here was then at Aberwick ford.

The fine grounds of Shawdon Hall were then entered. The dark Austrian pines by the approach have a peculiar effect. The young spruce fir plantations here in the spring mornings are tenanted by a full-voiced choir of birds. The gardens and pleasure ground were gone over with great pleasure and interest. *Retinisporas*, *Arbor-vitæ*s, and the Juniper section of the *Coniferæ* prosper here. Round the Hall and in various other directions of the surrounding park, are some grand patriarchal trees—Oaks, Elms, Ashes, Sycamores, and Limes. The Hanging Tree still survives, although it has lost a limb. There is also a remarkable line of old Hollies, the one side of an avenue to the former mansion-house, which partly consisted of a peel-tower, of which some of the vaults still exist behind the stables. Some of the company were surprised to see Rooks building in the tops of these hollies. This rookery is a detachment from the great stronghold of the rooks in the centre of Shawdon Wood, which

sought protection here, when an attempt some years ago was made to dislodge them from their long familiar resort.

The following measurements of some of the best trees at Shawdon Hall have been communicated by Mr James Thomson.

At one foot from/the ground.				At five feet from the ground.			
		ft.	in.			ft.	in.
Oak	-	19	6				Boles short.
"	-	14	0				
"	-	13	3				
"	-	13	0				
Ash	-	15	0	-	-	15	0
"	-	13	0	-	-	11	2
"	-	12	0	-	-	11	0
Beech	-	16	0	-	-	14	9
"	-	15	6	-	-	14	2
"	-	15	0	-	-	12	3
Elm	-	17	7	-	-	14	10
"	-	17	0	-	-	13	4
"	-	17	2	-	-	16	5
"	-	15	0	-	-	10	0
Sycamore		19	0	-	-	11	0
(Divides into 2 limbs.)							
"	-	15	6	-	-	14	6
"	-	15	0	-	-	12	7
"	-	13	3	-	-	12	9
Lime	-	13	9	-	-	13	6
"	-	12	0	-	-	11	9
"	-	9	10	-	-	8	4
Scotch Fir		10	0	-	-	9	9
Silver Flr		13	3	-	-	11	0
Alder	-	8	0	-	-	7	0

Rumex sanguineus, and *R. Hydrolapathum* grow by the side of the pond, which contains much *Polygonum amphibium*, and *Myriophyllum spicatum*. There is unfortunately a leprosy spot of *Pseudococcus Fagi* at the base of the beech hedge at the south-east corner of the garden. The young twigs of the Lime trees are galled with amorphous green galls of Cecidomyian origin.

Outside the walk to the garden are arranged several carved and other stones, brought from old buildings, &c. On one are represented the Water-bougets of the Lilburns, for a long period owners of Shawdon. This armorial insignia originally belonged to the Lords de Ros, the lords superior; for we had at Bolton passed out of the ancient demesnes of the Earls of Dunbar to those of the old owners of Werk Castle, another Anglo-Scottish

family. A drawing of this stone has been taken. Rather curiously it was found in a field at Shawdon Woodhouse. Here also were three querns, one of them got when draining a field near the Gardener's Lodge; another in a British camp on Titlington Mount; and the other, which is perfect, and which Mr Thomson exhibited in operation, had been brought from the Scottish Highlands.

The Hall was opened to the company, and the objects of antiquity, family and other paintings, library, and some rich old furniture, were examined and much appreciated. The contents of the Library, were principally works on Theology, Natural History, Law and History. Here were also preserved a number of curiosities collected from different parts of the estate, during the present Mr Pawson's time. 1. Fragments of Red Deer antlers, of medium size, found 5 feet from the surface in a drain behind Shawdon House. 2. An antler of Red Deer, with 5 tines, found 5 feet deep in a wet boggy drain, below Titlington House. 3. A three-legged brass Flagon, with a handle, and having its spout unadorned, found about 1862, in draining a bog at Hoppen, not far from the lime-kiln. A high mound of black soil full of bones was come on, the remains of a paved road, and the brass vessel. It is 9 inches high; the diameter at top, 3 inches. 4. The small caldron of copper plate found in 1828, on the under flat part of Mr Pawson's ground, above Bolton Church. It is figured in the Hist. of the Club, Vol. xi., fig. 31, p. 313. Drawings by Mr H. P. Taylor have been made of the tripod brass-flagon; of a strong old chest once used for keeping jewels and valuables; and of a peculiar apparatus for toasting bacon for breakfast; which may yet be available as illustrations of domestic utensils and household requisites of a previous age.

Among the stuffed birds was a Jay. Jays once frequented the woods at Titlington Hall, and also I was told by the late Mr Carr-Ellison at Hedgeley, but were extirpated for their mischief in destroying all kinds of nests. The White, the Horned, and the Hooting Owls are here also, as well as at Hedgeley; and the Short-eared Owl at the latter place. An example of the Common Buzzard is also preserved at Shawdon. In the autumn the Ring-ousels and Missel Thrushes, preparatory for their migratory flight, make a descent upon the mountain ashes, and denude them of their rich coloured berries in a night. The garden is

regularly visited by the Cuckoos in summer to feed on the gooseberry caterpillars, and they are then very tame and venturesome.

Shawdon Hall is 245.8 feet above sea-level. After leaving it on the way to the entrance to Lincombe dean, where the marquee for dinner was pitched in a sheltered dell, attention was called to the attacks made by unprecedented numbers of Water-voles (*Arvicola amphibia*) on the grass of the cow pasture. For two years, Mr William Thompson, the land-steward, told us they had come out of the hedge-row ditches, and open casts, and were effectually baring the turf, by consuming the grass roots. This was done in broad patches, which, working socially, they had made as naked as the floor of a house, perforating the ground as they do their native burn-sides. They were being regularly trapped by ordinary mole-traps; in 1884, 546 were captured; in 1885, (date July 28) 600 were taken, and there still was left a residue; in 1886, 700 or 800 were killed, and it was then expected they were nearly extirpated. I examined two of them and they were the true Water-vole. They had also occupied much of the sward of Shawdon Wood, whence they had invaded the neighbouring pastures of Shawdon Woodhouse. In speaking of them afterwards, Mr Middleton Dand said that at Gloster Hill near Warkworth they had also become troublesome and were turning up the soil, and rendering it dangerous to ride over the ground they had undermined. During the summer of 1888, according to the local newspapers, they have occasioned much damage as well as obstruction to the mowers in the hay-fields near Felton. During the winter 1888-9 they had transferred themselves from the fields to the gardens, and were burrowing beneath the celery, and gnawing the roots of young fruit trees. It was observed that much earth-nut grows in the old grass fields at Shawdon.

The company for the day were under the presidency of the Rev. David Paul, Roxburgh, and as he and several others were obliged to leave early, he nominated Mr Matthew T. Culley of Coupland Castle in the place of the late Mr Cadogan, as President for 1888. The members dined under a tent, provided by Mr Hall, Glanton, Capt. F. M. Norman, R.N., occupying the chair, who after dinner, read a letter prepared by a committee of Berwick members, to be transmitted to Mrs Cadogan of Brenkburn, to condole with her in the loss she and her family

had sustained by the death of her husband, the President-elect of the year. This was approved of. A paper was read from Mr Skelly, Alnwick, entitled "Notice of St. Leonard's Hospital, Alnwick, with an account of an ancient Mortar found in its vicinity," accompanied by a drawing.

A notice had been received from Mr Hugh Miller, F.R.S.E., F.G.S. of H. M. Ordnance Geological Survey, of the reasons that induced the Ordnance Survey to adopt Mr George Tate's arrangement, first proposed in the Club's Proceedings, of the Lower Carboniferous Strata in Northumberland, in preference to any other. It is found applicable to the whole of Northumberland and Liddesdale, and the borders of Cumberland. This paper is printed in the Club's Proceedings for 1887, Vol. XII., pp. 116-8.

A skin of Pallas's Sand-Grouse (*Syrrhaptes paradoxus*) was exhibited from Mr George Pow, Dunbar, one of several sent to him to be stuffed from the neighbourhood of Oldhamstocks. A small flock of Sand Grouse was also seen on May 23rd in the corn-fields at Penmanshiel, a few days after the Dotterels had departed. They still remained at Red Clues on Townhead farm till June 14th. This adjoins the field on Penmanshiel. A flock had also been seen by Mr Craw at West Foulden.

A letter was read from Major-General Sir William Crossman, M.P., on a proposed visit to Holy Island, to view recent excavations there among the domestic buildings of the Priory, along with the Durham Architectural and Archæological Society and the Antiquarian Society of Newcastle, which was agreed to.

There was a numerous attendance at this meeting; including Mr F. W. Collingwood, of Glanton Pyke; Rev. R. H. Williamson, Whickham; Rev. E. H. Adamson, Felling; Rev. Canon Ilderton, Ingram; Capt. Norman, R.N., Berwick; Rev. David Paul, M.A., Roxburgh; Mr James Hardy, Oldeambus, (Secretary); Capt. Forbes, R.N., Berwick; Mr G. P. Hughes, Middleton Hall, Wooler; Mr Adam Robertson, Alnwick; Mr George Reavell, Alnwick; Mr B. Morton, Sunderland; Rev. Adam Davidson, Yetholm; Mr John Dunlop, Norham; Mr E. Willoby, Berwick; Mr and Mrs. G. Muirhead, Paxton; Dr. Stuart, Chirnside; Mr J. J. R. Storer, Alnwick; Mr J. J. Horsley, Alnwick; Mr W. T. Hindmarsh, Alnwick; Rev. John Walker, Whalton Rectory; Rev. P. McKerron, Kelso; Mr James Thomson, Shawdon; Mr Wm. Thompson, Shawdon Cottage; Mr J. C. Hodgson, Low Buston; Mr W. D. La Touche, Warkworth; Mr Edward Thew,

Birling; Mr James Tait, Cockhall, Edlingham; Mr John Bolam, Bilton; Mr Samuel Mason, Heckley House; Mr W. N. Strange-ways, Newcastle; Mr William Guthrie, Hawick; Mr F. Elliot Rutherford, Hawick; Mr James Heatley, Alnwick; Mr A. Craig, Edinburgh; Mr T. Craig-Brown, Selkirk; Mr Robert Middlemas and Mrs. Middlemas, Alnwick; Mr George Bolam, Berwick; Mr J. L. Newbigin, Alnwick; and others. Major Burrell, Col. R. E. Carr, Dunston Hill, and Mr R. G. Bolam, also joined in part of the walk.

The following were proposed for membership, Major-General J. J. Boswell, C.B., Darnlee, Melrose; Hugh Macpherson Leadbetter, Legerwood, Earlston; Rev. George Cook, Longformacus, Duns; and as a Lady Member, Mrs. Paul, Roxburgh Manse.

KIRKNEWTON, HEATHPOOL, COUPLAND CASTLE.

OWING to the unsuitability of the weather for a visit to Cheviot, one of the main objects of this day's meeting was frustrated, and the peregrinations of members were restricted within narrow compass, and over ground that had been thoroughly investigated. A less beaten track may be taken from Mindrum in 1889, which may compensate for disappointments on the present occasion. I have adopted the account of the reporter of the *Newcastle Journal*, to which I contributed the list of members present, and have supplemented it with some observations of my own by way of comment.

Wednesday the 27th June, was the day fixed for the second meeting. The locality fixed upon for visiting was the magnificent hill country in the neighbourhood of Kirknewton and Coupland Castle.

The morning broke dull and damp, but in the hope that as the morning advanced the clouds would pass away, a considerable number of gentlemen and one lady left their beds at an early hour and proceeded to the rendezvous—viz., Kirknewton Station. Very few started from Newcastle, but at various points on the journey several others joined them, and the little party received a fairly respectable accession to their numbers at Alnwick. When they met the Berwick and neighbourhood contingent and those belonging the immediate neighbourhood at

Kirknewton, they formed a company sufficiently large to be astonishing considering the state of the atmosphere. Breakfast, provided by Mr Hall of Glanton, was partaken of in a marquee, on a plot of ground granted for the purpose by Mr Thompson, and situate at the junction of the Colledge and Bowmont Waters, close to Kirknewton Station, and the repast was very welcome to those especially who had had to leave their homes not later than half-past five o'clock. Having thus fortified the inner man, the party began to think about carrying out their programme, which was shorter than usual, but one of a really delightful character.

It had been proposed to form a party for a visit to Cheviot, but indeed that king of the Border mountains, and most others had their night-caps still on and drawn well down, and as it was very reasonably considered that such a journey would consequently be productive of no real pleasure, but more than likely result in the party getting wet through, it was abandoned. The whole company therefore went in one direction, viz., towards Heathpool Farm. In an ever lengthening procession they passed Mr Borthwick's farm at West Newton, and proceeded from there, with Heathpool Bell on the left, examining as they went the baulks which remain to show that at some remote period the hill side where they exist had been under cultivation of a very primitive kind, to Heathpool Farm where under the courteous guidance of Mr Rea of Middleton, who is one of the largest, if not the largest, tenant farmers in the country, they inspected the remains of the peel tower, which stood there in former and troublous times for the people of the Border. Very little indeed of the tower is left, and most of that is concealed behind an extremely thick growth of ivy. The remains of an old spiral staircase attracted much attention, from the size and raw condition of the stones. By this time the sun had pierced the murky clouds, and soon shone with great intensity in the valleys, though the mists still, and throughout the day, lay heavy far down the sides of the hills. Leisurely, and with due regard to the heat, the company walked down the vale of the Colledge, viewing with something like rapture the famous trout stream and its glorious setting, to Kirknewton, where refreshments were partaken of.

A move was next made for Coupland Castle. After a delightful walk down the side of the water, they passed Mr Black's farm at Lanton, and saw in the distance the Lanton monument,

erected to one of the Davisons, and ultimately the castle, which was their goal for the time being. Arrived there they were hospitably received by the owner, Mr Matthew T. Culley, the President for the year, who entertained them to luncheon and very willingly showed them round the place. The present Coupland Castle is composed of an old peel tower and an adapted farmhouse, with a modern building intervening, the whole harmoniously designed to form the present stately building. A fireplace in the peel tower bears date 1619. After warmly thanking Mr Culley for his courtesy the party returned to Kirknewton and inspected the curious church. There is evidence of a Norman edifice having stood on the same site. During the times of Border strife that building was destroyed, and for some time the site remained unoccupied. Subsequently a peel tower was erected, and in a more peaceable period a second church was erected, the vault of the tower being used for the chancel, a feature which makes the edifice peculiarly interesting. Dinner, provided by Mr Hall, was then partaken of in the tent; Mr Matthew T. Culley occupied the chair. Amongst others present were the High Sheriff of Northumberland (Mr J. R. Carr-Ellison), Col. R. E. Carr, Dunston Hill; Mr G. P. Hughes, Middleton Hall; Mr J. B. Boyd, Cherrytrees; Mr James Hardy (the Secretary); Mr John Turnbull, Abbey St. Bathans; Capt. Forbes, R.N., Berwick; Mr S. Mason, Alnwick; Mr and Mrs. G. Muirhead, Paxton; Mr E. Willoby, Berwick; Rev. J. Hunter, Cockburnspath; Mr C. Watson, Duns; Mr W. Crawford, Duns; Dr. J. Denholm, Broomhill; Rev. W. D. Herald, Duns; Mr R. Weddell, Berwick; Rev. W. C. Dobie, Ladykirk; Rev. E. Rutter, Spittal; Rev. Canon J. S. Pickles, Wooler; Mr J. Thomson, Shawdon; Mr J. J. R. Storer, Alnwick; Mr J. Heatley, Alnwick; Mr James Mill, Trinity College, Oxford; Rev. A. Davidson, Yetholm; Mr G. H. Thompson, Alnwick; Mr J. Heatley, junr., Alnwick; Mr A. Robertson, Alnwick; Mr G. Fortune, Duns; Rev. J. Walker, Whalton Rectory; Mr W. T. Hindmarsh, Alnwick; Mr J. Ferguson, Duns; Mr M. H. Dand, Hauxley; Mr John Bolam, Bilton; Mr W. B. Boyd, Faldonside; Mr G. Rea, North Middleton; Rev. R. H. Williamson, Whickham; Rev. E. H. Adamson, Felling; Dr. Paxton, Norham; Dr. R. S. Gibb, Boon; Mr A. G. Spence, Boon; Mr W. J. Snowdon, Newcastle; Rev. A. Jones, Cramlington. As usual, the first dish was Tweed salmon. After an excellent repast the only toasts that are ever

proposed at this meeting—"The Club" and "The Ladies"—were given; to the latter of which Mr Muirhead, the only gentleman whose wife had accompanied the excursion, suitably responded. New members were proposed, including Sir Edward Grey, Bart., Falloden, M.P.; Mr R. G. Huggup, Glo'ster Hill, Warkworth; Mr John Turnbull, Hawick; Mr John Rosecamp, Shilbottle Colliery, Lesbury; Rev. W. D. La Touche, Warkworth; and John Thomas Carse, Amble, Acklington. The President read Mrs Cadogan's reply to the letter sent by the Club, condoling with her on the loss sustained by the death of Mr Cadogan.

I observed that the baulks above Heathpool were neither equidistant nor parallel to each other; nor were they uniform in the strength and thickness of the retaining walls and protecting banks. Some of these occupied broad spaces; others were narrow rims, and with very steep almost downright slopes. The pastures were dry, and the grasses fine, and free from *Nardus stricta*, and suitable for Cheviot sheep. This hill-country is well adapted for young horses running out, as they do not get hurt or bogged. *Orobis tuberosus* (*Lathyrus macrorrhizus*, Wimm., not *Lathyrus tuberosus*, L.) and *Hieracium pilosella* were in blossom. The base of the old peel tower at Heathpool was overrun with the "Mother of Thousands" (*Linaria cymbalaria*). Good King Henry was a domesticated weed round the steading. At the Linn the company were on the wrong side for reaching its botanical treasures, some of which could be seen beyond the watery turmoil, at present in an incipient state of growth, as most of them bloom in autumn. The Redstart was darting here and there among the adjacent stone-walls near the Linn, where I never before remarked it. Numerous young Wheat-ears of the early brood were perched on stones and stone-walls, preparatory for shifting their ground. The Fox-glove was very prevalent on the gravelly upper banks of the Glen, and along the Railway about Akeld. *Verbascum Thapsus* grew on the north bank of the river where the ford crosses above Lanton.

There was not much time for viewing the contents of Mr Culley's ample library. It was well supplied with historians of the 17th and 18th centuries. One of the older gems was a 1551 edition of "Gammer Gurton's Needle," perfect. With the precious article in one's hand, estimated by the owner as "worth its weight in gold," one recollects Pope's lines in his "Imitations of Horace:—"

“ Authors, like coins, grow dear as they grow old :
It is the rust we value, not the gold.”

——“ The people’s voice is odd,
It is, and it is not, the voice of God.
To Gammer Gurton, if it give the bays,
And yet deny the Careless Husband praise,
Or say our fathers never broke a rule ;
Why then, I say, the public is a fool.”

There were also noticed a 12mo black letter edition of Stow’s England, imperfect ; also an imperfect Camden in English, small folio ; the Surtees’ Society Publications ; Surtees’ Durham, and Raine’s North Durham ; a good selection of well-bound modern books, &c., &c. Mr Culley told me, he was editing for the Early English Text Society, a Caxton translation from a French original. There was no time to look at the collection of Greek, Latin and French classics ; nor with so many visitants, was there an opportunity afforded to exhibit his collection of Bronze Celts, and Flint Weapons.

I did not see the church at Kirknewton. That the chancel is the vault of a mediæval peel tower may be held in doubt. There is in it a rough bas-relief of the Virgin and the Magi. The Rev. Matthew Culley is engaged with a paper on the history of the Church. The Rev. P. G. McDouall, formerly vicar here, sent a drawing of a mediæval brass key, found near a well among the Kilham Hills, with a short notice of it. There is an open cross on the handle. A reduced representation of it may yet appear as a cut. The key was exhibited in 1875, (Club’s Proc. Vol. VII., p. 346). The manorial history of Heathpool, Lanton, and Kirknewton, must for the present remain in abeyance.

JEDBURGH, MINTO, CHESTERS, ANCRUM, MONTEVIOT.

The third meeting of the Club was held at Jedburgh, July 27th, when 34 were present. After breakfast the company proceeded in three carriages towards Minto, by the road which passes across the Dunion, whence as the threatening showers cleared away, a bright view of the valley of the Teviot was enjoyed ; the hills and woods and fields wearing their richest summer attire. Owing to the moist season, the verdure was more than usually prevalent, and of a more tender hue than the period would warrant. The rivers were in flood, especially Rule Water,

which came down "red, roaring, rough," swollen by the copious rain-fall of the preceding evening which had descended near the sources of the stream, tinging the Teviot all the distance to its junction with the Tweed, where the two rivers flowed in separate colours even below Kelso Bridge. Viewed from the public road the back of Lanton Hill behind Black Hall is still clad in bog and fern. Tufts of blooming Broom appear near the Rule. Ruberslaw was green with bracken growths. Its bulk appears greatly dwindled when looked at end-ways on, near at hand. A strip of planting on it was pointed out, said to be earlier in the season full of flowering Fox-glove; which must form a splendid line of colouring. Spittal, the north-east corner of Cavers Parish, was passed beyond the Rule. Little is known of its history. Jeffrey (*Hist. of Roxburghshire*, Vol. iv., p. 340) says, "On the N.E. point of the barony (of Cavers) stood an hospital or asylum for pilgrims, and the deceased and poor. There are now no remains of it. The patronage of the hospital was in Douglas of Cavers." Mr Walter Deans writes: "I once visited the Spittal Kirkyard. The gateway is still erect; and enclosed by an old dyke, there are several tombstones standing, and some lying flat. There are no vestiges of the old chapel. Some of the inscriptions on the stones bear the names of Bunyan or Bungie, which is the common pronounciation of the name here. I have forgotten what the others are."

After crossing the Rule, the party proceeded through the pretty village of Denholm, where another carriage with members from Hawick waited, and they being familiar with the district, took precedence as guides. Leyden's house attracted notice in passing. There are several new houses either in the village or within its precincts, indicating that the place is thriving.

The beautiful grounds of Minto House, with the magnificent trees, were greatly admired. Minto House is a stately and spacious mansion of white sandstone, finished in 1814, and placed on the foundations of an older house and tower near the brink of a deep glen through which a rivulet flows, across which an embankment being carried, a fine tree-shaded pond has been the happy result.

The Countess of Minto has preserved for us a pleasing contrast between the Minto of 1774 and that of the present day.

"The Minto of those days was not the Minto of these. The sheet of water which now reflects laburnums and rhododendrons

in sight of the windows, was then a narrow burn running under banks shaggy with thorns; where the flower-garden is now, stood a dismal little church in a corner dark with yews, and dreary with unkept graves; the manse, surrounded by a few untidy cottages, overlooked the little glen, and was near enough to the house for the minister to see the family as they sat at dinner in the round room on the ground-floor, known as the 'big room' by uncles and aunts, and as the 'school-room' by the children of to-day. The rocks may have been finer then when no woods hung like drapery on their sides, but from the old castle one must have looked down on muirs and heaths where now lie the woods of the Lamblairs, or the green slopes and corn-fields which smile in pleasant Teviotdale.

The green hills are possibly the only feature in the place which remain unchanged, though the village which clusters at their feet is new.

In those days roads were few, and drains were not, and the dwellers in a land where high farming triumphs will sometimes lament the days when fences were odious and turnips undiscovered. Yet, on the whole, though sunny days may then have shown bright stretches of whin or of heather which have disappeared now, we must admit that we live on a drier soil, and in a more 'innerlie' country, and have a greater variety of cheerful pleasures than fell to the lot of our forefathers.*

The house was open to the company. In the entrance hall there is a Canadian and Chinese collection of spoils of the chase, weapons, and curiosities; also a series of Tasmanian and Australian Mammalia, Birds, etc., brought home by Sir Henry Elliot. The Library where the books were in excellent bindings; Lord Minto's room; the family portraits, and the paintings were leisurely examined to every one's satisfaction. A party was formed to botanise Minto Crag; while others preferred to look at the old churchyard, the gardens, and the finely wooded dean below the mansion. It is pleasant to know that the inmates of the manse, and the family when resident here, were on the most amicable terms. Dr. Somerville, in 1764-9, then unmarried, appears to have been an inmate in Sir Gilbert Elliot's house, where he had partial charge of his two sons, Mr Elliot afterwards Governor-General of India, and first Earl of Minto; and Mr Hugh Elliot subsequently Governor of Madras.† There is a

* *Memoirs of the Right Hon. Hugh Elliot*, pp. 72, 73.

† *Somerville's Life and Times*, p. 125.

ravine crossed by a bridge between the mansion house and the old churchyard, which is now beautified with flowers and shrubs. The garden is chiefly devoted to practical purposes. In one part of it was a good and varied herbaceous border; but the remainder of the floral decoration was repetitionary, with little variation. The foliage of the oaks was much frittered by the caterpillars of *Tortrix viridana*. The Beech trees both here and near Bonjedward were unusually productive of Beech-mast, and their foliage was of a brighter green than is usual at the period of the season. *Epipactis latifolia*, *Listera ovata* and several fungi were picked up. Those who visited Minto Crags found *Lychnis viscaria*, and a fragment of *Asplenium germanicum*. *Sticta glomulifera* is very fine there. There are some unrecorded *Calicia* in the Minto woods. *Pyrola minor* was gathered somewhere by Mr Brotherston. *Rubus cæsius* was plentiful by the hedge-sides before approaching the lower entrance lodge; and also the Wild Strawberry. The Rev. David Paul communicates the names of the Fungi observed in the Minto Grounds. 1. *Agaricus rubescens*: 2. *A. vaginatus*: 3. *A. cervinus*: 4. *A. fascicularis*: 5. *A. pascuus*: 6. *Lactarius subdulcis*: 7. *Cantharellus cibarius*: 8. *Boletus flavus*: 9. *B. luridus*: 10. *Polyporus abietinus*: 11. *P. varius*. He saw also on the road-side, (12) *Agaricus giganteus*. It was too early for the larger Fungi.

Since the meeting I have been favoured by Mr John Robertson, with the measurements of the largest trees on the estate.

MEASUREMENTS OF TREES ON MINTO ESTATE.

	At one foot from the ground.			At five feet from the ground.		
	ft.	in.		ft.	in.	
Larch -	11	3	-	-	9	11
„ -	15	0	-	-	12	4
„ -	13	6	-	-	11	7
„ -	13	6	-	-	10	0
Silver Fir	16	1	-	-	11	11
„	15	0	-	-	14	0
„	12	0	-	-	10	0
Scots Fir	10	0	-	-	8	8
Beech -	13	0	-	-	10	5
„ -	15	3	-	-	11	8
„ -	15	2	-	-	11	4
„ -	11	2	-	-	10	4
„ -	13	3	-	-	11	5
„ -	12	0	-	-	10	7

At one foot from the ground.				At five feet from the ground.			
	ft.	in.			ft.	in.	
Oak	16	6	-	-	12	0	
"	14	0	-	-	11	7	
"	13	10	-	-	10	4	
Ash	13	7	-	-	9	10	
Sycamore	14	7	-	-	10	4	
"	13	0	-	-	10	4	
"	11	9	-	-	10	0	
Black Italian							
Poplar	15	9	-	-	13	0	
"	14	10	-	-	11	4	

After a considerable drive Chesters House was passed, and the carriages were checked to look down the avenue, where there was a series of good Beeches in the avenue. This estate is said to be more fully timbered than any in the neighbourhood. When possessed by the Bennets, they kept a trade nursery here, a rival of that of the Dicksons at Hassendean, whence many of the plantations that now decorate the country were derived, and as appears by advertisements in the old Newcastle newspapers of the middle part of the 18th century their business had extended to Northumberland. Accordingly I was desirous of having a tree list to compare with that from Minto, and this also was procured for me by Mr Robertson.

MEASUREMENTS OF A FEW OF THE LARGEST TREES AT CHESTERS.

At one foot from the ground.				At five feet from the ground.			
	ft.	in.			ft.	in.	
Beech	15	6	-	-	12	11	
"	12	9	-	-	11	0	
Ash	12	0	-	-	11	0	
"	9	0	-	-	8	4	
Oak	15	0	-	-	12	8	
"	13	11	-	-	12	11	
Elm	12	10	-	-	12	4	
"	12	6	-	-	9	10	
Lime	12	2	-	-	10	10	
"	8	10	-	-	7	6	
Plane	14	3	-	(did not measure five feet up.)			
"	11	0	-	-	9	11	
Larch	10	0	-	-	8	6	
"	9	0	-	-	7	2	

JOHN LAIDLAW, Forester.

In approaching to Ancrum much of *Geranium pratense* was conspicuous by Teviot's "willowed shore." The anglers were all out, and the cows picturesquely wading in the cooling stream. The quaint village of Ancrum was passed through. The walls of the houses are ornamented with climbers, or have little flower plots in front. In more than one garden, *Malva rotundifolia* in blossom gratified a taste for strong colouring, while keeping up a ready supply of material for poulticing the sores and hurts either of man or beast. There is here a triangular green and a broken village cross.

Passing Ale Water the company drove through the Park at Ancrum House, where are numerous gigantic old trees, and a large herd of fallow-deer. As time pressed, the visit here was not prolonged; only a short time being allowed for viewing the exterior of the fine new house that had replaced another equally good, which a short time ago was accidentally burned down. Mr Walter Laidlaw has handed me a document about the outfit of a still older house, and its garden. Sir Robert Kerr to the Earl of Lothian, Dec. 20th. 1632, giving instructions for the alterations on the house and grounds of Ancrum, says: "Peare trees will grow wele, wheroff seek out the best within Newbattle and Jedburgh and other places of renowne and eyther plant or graft the best." This is another testimony to the fame of "Jedburgh Pears," for whose history, see Club's Hist. vii., pp. 193-208.

For measurements of the largest trees in Ancrum Park, I am indebted to the kindness of Mr Thomas Scott, Ancrum, and Mr John Scott Dudgeon, Longnewton, who assisted him.

MEASUREMENTS OF TREES AT ANCNUM PARK, TAKEN 12TH MARCH, 1889.

At one foot from the ground.					At five feet from the ground.				
		ft.	in.				ft.	in.	
Lime	-	19	11	-	-	-	19	9	
"	-	15	11	-	-	-	11	7	
"	-	25	4	-	-	-	24	0	
"	-	17	6	-	-	-	16	7	
* "	-	15	6	-	-	-	17	10	
"	-	20	7	-	-	-	15	10	
Elm	-	16	8	-	-	-	13	10	
"	-	16	2	-	-	-	13	3	
"	-	20	0	-	-	-	16	4	
"	-	16	4	-	-	-	14	0	

* This Lime was lying cut down and at 10 feet from the ground, measured 21 feet 3 inches.

At one foot from the ground.				At five feet from the ground.			
		ft.	in.			ft.	in.
Beech	-	16	4	-	-	15	1
"	-	17	9	-	-	13	10
* "	-	18	0	-	-	19	2
* "	-	24	6	-	-	13	11
"	-	20	11	-	-	14	9
Ash	-	14	9	-	-	12	2

Mr Scott says: "The Limes are very old and large, and wide spreading in the branches."

Sir William Scott superintended part of the measurements, and took them to some Beech trees that would otherwise have been unseen. He believes some of the trees (Limes, etc.) were planted by the Monks prior to the Reformation.

The party then hastened on to Monteviot, where the object of the visit was to inspect the Museum of the Marquess of Lothian. Owing to repairs on this portion of the mansion house, the contents were for the present in a confused state. Special attention was paid to those extracted from the Roman station at Cappuck, which included several broken Amphoræ, fragments of Samian ware, and a commoner brown ware, a Roman mortarium of trachyte, a Roman iron-spear head with rivet-holes, stone whorls, and the inscribed stone with the legend of the sixth legion, which, Dr. Bruce in a letter said was similar to one found on Antonine's wall. He read it "LEG. VI. V.V. FECIT." Here were noticed also an iron battle-axe, not Roman; a mediæval helmet; a "Ragging Machine" for cleaning lint; a British Urn from Ancrum; and another from the Dunion.

There are some fine trees on the Monteviot estate, of which Mr Caverhill, the Marquess's Commissioner, has favoured me with the measurements.

MEASUREMENT OF SOME OF THE OLD TREES ON MONTEVIOT ESTATE, 1889.

At one foot from the ground.				At five feet from the ground.		Where growing.
		ft.	in.	ft.	in.	
Silver Fir	-	10	3	7	8	Timpendean Castle.
"	-	17	0	10	6½	"
"	-	15	1	10	11	"

* These two Beech trees were also lying blown down. In fact all these trees are going back, and nearly all have lost limbs and show signs of decay.

	At one foot from the ground.		At five feet from the ground.		Where growing.
	ft.	in.	ft.	in.	
Scots Fir	-	8 0	7 1		Monkclaw.
"	-	7 10	6 9		"
"	-	8 8	7 1		"
"	-	9 6	7 3		"
"	-	8 4 $\frac{1}{2}$	7 2 $\frac{1}{2}$		"
"	-	9 8	7 1		"
Poplar	-	16 1	13 2		Bonjedward.
Saugh	-	18 8	15 2		Carriage Drive, Monteviot.
Gean	-	9 0	8 9		"
Oak	-	12 10	9 5		"
"	-	14 10	9 7		"
"	-	11 8 $\frac{1}{2}$	9 1		"
"	-	15 6	10 7		Flower Garden.
"	-	17 4	14 9		"
"	-	16 0	12 10		"
"	-	15 8	11 3		"
"	-	16 6	13 10 $\frac{1}{2}$		"
Beech	-	17 11	12 5		"
"	-	16 11	11 1		"
"	-	17 9	11 10 $\frac{1}{2}$		"
"	-	17 3 $\frac{1}{2}$	14 10		"
Plane	-	19 8	15 0		"
"	-	18 9	11 7 $\frac{1}{2}$		"
"	-	17 5	12 5		"
"	-	17 3	12 8		"
"	-	17 2	12 3		"
"	-	16 9	13 5 $\frac{1}{2}$		"
Elm	-	14 10	10 11		"
"	-	17 0	15 5		Stables (close to house.)
"	-	19 7	13 10		"
"	-	20 7	14 0		"
Ash	-	14 2	11 2		"
"	-	18 9	10 11		"
Abies Menziesii	13	6	9 0		"
Larch	-	13 5	8 6		Gamekeeper's.
"	-	13 9	8 6		"
"	-	11 0	7 10 $\frac{1}{2}$		"

The carriages were sent round to a point near Jedfoot, and the visitors crossed the meadows over a chain-bridge on the Teviot, to reach them, and arrived at Jedburgh at 4.30 p.m.

Owing to several members having to leave early, dinner under the Rev. David Paul, Roxburgh, acting as chairman, was

hastily dispatched. After the company thinned, business was proceeded with.

A letter was read from the Hon. Secretary of a meeting held at Newcastle on the 18th July, of those interested in the British Association's visit to Newcastle in 1889, asking the Club to appoint two of the members to act on the Local General Committee; and Mr George P. Hughes of Middleton Hall, along with Mr W. T. Hindmarsh, Alnbank, were chosen as the Club's representatives, both of them members of the British Association. Arrangements for the Holy Island Meeting on the 31st August were also settled.

A continuation of Mr Walter Laidlaw's Notes on Cappuck, where the outline of the Roman Station is now fully laid open, were read, and a vote of thanks was accorded to him.

A paper was read entitled "Notes on Fairnington and the Rutherfords of that Ilk, with special reference to the Exchequer Rolls of Scotland, by C. H. E. Carmichael, M.A.," of London.

The Rev. David Paul announced the discovery of a rare Fungus for the district.

There were exhibited a collection of Flint Arrow-heads from County Antrim, by Mr Cumming, Jedburgh; a silver dollar of the Emperor Ferdinand II. of Germany found in a field near St Boswells by Mr Dove, Eccles House; a curious Key found in Jedburgh Abbey, from the Jedburgh Museum, by Mr James Watson; a fine heavy stone celt ($10\frac{1}{4}$ inches long; $3\frac{3}{4}$ inches at the broadest) from the vicinity of Edgerston Tofts, by Mr Laidlaw; now in the Marquess of Lothian's Museum, and of which a drawing and measurements have been obtained: it was found 20 years ago.

Mr Aaron Forrest showed an arrangement by means of a perforated board, by which coins could without removal be read on both sides. There was not time before train time to examine some of Mr Strang's coins.

The following were proposed for membership: Mr Edward Fisher, F.S.A. Scot., Abbotsbury, Newton Abbot, South Devon; Mr George Wood, Exchange Buildings, Jedburgh; Mr Thomas Smail, Jedburgh; Mr H. Masterton, Union Street, Kelso; Rev. J. M. L. Aiken, Ayton.

There were present at this meeting; Rev. David Paul, Roxburgh; Mr James Hardy, Secretary; Mr J. J. Vernon, Hawick; Mr David M. Watson, Hawick; Mr Wm. Guthrie, Hawick; Mr Waugh, Hawick; Mr F. E. Rutherford, Hawick;

Rev. Wm. C. Callander, Ladhope, Galashiels; Rev. Thomas Martin, Lauder; Dr. Stewart Stirling, Edinburgh; Mr James Wood, Galashiels; Mr Robert Romanes, Harryburn, Lauder; Mr Henry Rutherford of Fairnington; Major Thompson of Walworth Hall, Darlington, and Miss Thompson; Mr James Cumming, Jedburgh; Mr William Elliot, Jedburgh (Sheriff Clerk of Roxburghshire); Mr Thomas Smail, Jedburgh; Mr James Watson, Jedburgh; Mr Walter Laidlaw, Jedburgh; Mr H. Masternon, Kelso; Mr Brotherston, Kelso; Dr Charles Douglas, Kelso; Dr Edward Johnson, Kelso; Rev. Joseph Hunter, Cockburnspath; Mr W. T. Hindmarsh, Alnwick; Mr J. L. Newbigin, Alnwick; Mr A. F. Roberts, Selkirk; Mr Matthew Mackey, Newcastle; Rev. Ambrose Jones, Stannington; Mr George Fortune, Duns, and Miss Fortune; Mr J. M. Dunlop, Ashkirk; Mr Michael Muir, Selkirk; and Mr John Turnbull, Selkirk.

HOLY ISLAND.

By the invitation of Sir William Crossman, a joint meeting of the Club, with the Newcastle Society of Antiquaries, and the Durham and Northumberland Archæological and Architectural Society, was held on the 31st of August, at Holy Island, which was visited for the purpose of inspecting the recent excavations that have laid bare a large portion of the walls and foundations of the old Lindisfarne Priory. I adopt the reports of the representatives of the Newcastle daily press, of whom there was a full complement, which will suffice for the present. Sir William Crossman, himself, will most probably write a separate account of the result of the operations, as there is sufficient material here for a most interesting volume.

A balmy morning with the rare accompaniment of brilliant sunshine rendered the drive to Beal and from there across the long stretch of sands exceedingly pleasant. The priory ruins were reached about 12 o'clock, and the party were received by Gen. Sir William Crossman, M.P., the lord of the manor of Holy Island, who has been the means of carrying out the excavations, and the Vicar (the Rev. W. F. Keeling). The party altogether would number about 200, to which the Club contributed about 70, including the President. There were a considerable number of visitors from Bamburgh and different parts of the neighbour-

hood, who had no connection with any of the three societies ; and a considerable proportion of ladies, the members' wives and sisters or daughters.

SIR WILLIAM CROSSMAN, speaking from the base of a pillar within the ruins, welcomed the visitors on behalf of the Commissioners of Woods and Forests. With regard to what had been done in the matter of excavating the ruins, he might say he found last year that certain repairs were required which he could not undertake himself, and he wrote to the Government about it. He must say that the Treasury had behaved most liberally in allowing the Woods and Forests Commissioners all the money that was asked for, and in sending down their own architect, Mr Johnson of Newcastle, under whose direction the work had been carried out. He hoped what had been done would be the means of keeping these ruins in a good state of preservation for many years to come. He first carried out these excavations on the recommendation of the late Provost Consitt. He had pointed out where the excavations should begin in order to find the most interesting remains. Provost Consitt's advice was followed, and his prophecy was found to be correct. He (Sir William) was much indebted to Mr Hodges, Hexham, for the assistance he had given and the careful plans he had prepared, and also to the Vicar (Mr Keeling) for the great assistance he had afforded, and the zeal he had shown in the work. He now left them in the hands of Canon Greenwell to give an address "On the Island in relation to its Historical and Religious Associations."

CANON GREENWELL began by expressing satisfaction that the ruins had been confided to the care of a gentleman like Sir William Crossman, who would take care of them and preserve them. The place in which they stood, he said, was associated with the deepest and most sacred feelings, and before speaking upon the subject that brought them together, he should like to give a slight history of Christianity as established there, because where they were standing was the place from which Christianity may be said to have commenced. The place was occupied before the time of the Romans, and before Christianity came into the country, but the history of the island only commenced with the introduction of Christianity. These early people were variously described. They could, if they liked, call them Ancient Britons. The whole of this part of England was occupied in pre-Roman

times by these people, and we had various remains in the shape of arms, sepulchral remains, and different instruments for agricultural and other purposes to prove their existence. The Christianity they had there came from Ireland. They had every reason to suppose there was Christianity in Ireland—to what extent he was not prepared to say—before the time of Patrick, the great saint of Ireland. There was ground for believing that it was introduced through two channels—one from the south-west of Scotland; the other probably came through Gaul, and also perhaps through Wales, because there was a connection between the Gallic and Welsh Church, as well as a considerable connection between Wales and Ireland. Patrick, to a certain extent, was a mythical personage, but there could be no question there was a Patrick, because they had writings which, on the whole, could be attributed to him. Patrick at an early age was carried away captive into Ireland, and while he was there he conceived an attachment for the people that ultimately led him to go to Ireland and spread Christianity there. He felt quite sure that the Christianity of the West came through Rome, and he did not believe in the idea of another Christianity coming from the east. The Irish Church was essentially a missionary church, her missionaries going through the whole of Western Europe, through Germany, and even into Italy itself, preaching the Gospel, confirming the faith where it had been, and sowing it where it had not been sown before. Ireland was not only the centre of missionary work, but she was also the centre of education, and no finer examples could be found of writings done at that time than the books of the Gospels from the pens of the Irish scribes. In the British Museum there was a copy of the Gospels written at Lindisfarne, which was so like Irish books that no one would be able to discriminate between them. Anyone who had not seen it should go to the British Museum and ask to be shown the book. There was no architecture before the Conquest, as the buildings before that time had no style about them, and it was not until after the time of William the Conqueror that real architecture began. He pointed out that there was no such thing as the island of Lindisfarne; it was simply an island on the Lindisfarnensis coast. Lindisfarne, he believed, was derived from the names of two streams—Lindis, which was the old name of the Low, over which they crossed on the way from Berwick, and the Waren, which ran into the sea a little north of Bam-

burgh. Farne being transformed from the name of the latter stream, Lindisfarne was therefore simply the land that lay between the Lindis and the Waren. The christianising of Scotland was begun by Columba, who came from Ireland and founded a monastery at Iona. It was the monks at Iona who founded Lindisfarne, and he believed the island was selected because of its resemblance to Iona itself. King Oswald was the means of Christianity coming here. He had imbibed the Christian faith, and when he came to rule over his own kingdom of Northumbria he brought in Christianity through Aidan. When Lindisfarne church was built we did not know. There was a wooden church in the time of Aidan, but we could not tell how long that remained. The stone church was said to have been built during the time of the third bishop, after the Conquest, and it was built of stones brought from the mainland.

An adjournment was now made for luncheon. About two o'clock, the company having again collected within the ruins, Mr C. C. Hodges, Hexham, delivered, to a very large audience, a succinct and graphic description of the erection of the monastic buildings. He alluded first to the origin of monks and monasteries. In the first three centuries of Christianity, he said, we read of men who devoted themselves to living entirely alone, and spent their days in absolute solitude. After a time such a large number of men resorted to the custom of living in solitude that it became inconvenient, and man began to live instead in communities. The earlier monasteries were often a series of huts or cells, where each monk lived, but after a time this was changed, and men began to live in one house. It was built round a court, and in one part the monks lived, and in the other they worshipped. There were a great number of different rules with regard to the different orders. Though each order followed its own rules, however, there was not that great dissimilarity which people supposed. Generally speaking their buildings followed one particular plan. The plan was supposed to have been derived from the Roman house—a courtyard in the middle, and the apartments ranged all round it. This plan remained until the eleventh century, when architecture received a new lease of life and everything connected with it flourished. The rise of the monastic system dated from the year 1000, and it continued to rise in popularity until the 12th century, and from that period it began to dwindle away. In the two centuries preceding, 500

monasteries had been founded in England. The speaker went on to describe the different orders of monks, and the austerity of their respective ways of living. In Northumberland there were not many monastic houses—not so many as in the other counties of England. Yorkshire had the largest number, having more than any two or three counties put together. The monastic houses in Northumberland numbered altogether twenty-seven, or about 100 less than Yorkshire, where there were 130; so that Northumberland was sparsely occupied by the monastic orders. The house of Lindisfarne was founded by Oswald, king of Northumbria, about the year 635. Aidan was the first bishop, and he died in 651. Finan, the second bishop, who occupied the see from 652 to 661, rebuilt the church of Lindisfarne. This church was dedicated by the Archbishop of Canterbury, and it continued until the bishopric of Eadbert, the seventh Bishop of Lindisfarne, who covered the roof and walls of the church with lead in order to preserve them. How long this wooden church remained we could not tell. There was every reason to suppose a stone church was in existence on the island before the coming of the Benedictine monks in 1082. But after the death of Bede, which occurred in 735, we had very slight means of information with regard to the ecclesiastical history of the north of England. In examining the ruins he was led to the conclusion that there was a stone church before the Norman church was begun, and he thought if they read between the lines of the Charter of Carileph, who founded the Norman church, there was some inference to be derived sufficient to confirm that opinion. In 1082, Carileph ejected the secular canons from his church and introduced the Benedictine monks, and bestowed on them the church of Lindisfarne and other churches in the neighbourhood. Mr Hodges went on to quote the dates of charters from which it might be inferred that there was already a stone church on the island, and he also pointed out characteristics in the masonry to confirm the view of the pre-existence of a Saxon church on the spot upon which the Norman edifice was built. The church in which they were standing was built by Edward the monk, and it remained unaltered until the dissolution of the monasteries. The church was sufficient for the requirement of the monks, and therefore did not require enlarging, and as it was substantially built, it did not require repairing. In fact it had remained unaltered, as far as we could see, until the present day. The

church more or less followed the outlines of Durham Cathedral. The similarity between the nave of Durham and the nave at Lindisfarne would be evident to anyone acquainted with the former. Lindisfarne, in short, was an adaptation of the plan of Durham Cathedral to a church of lesser magnitude, and in its construction great ingenuity had been displayed. He regretted that many interesting stones connected with the church had disappeared in the last five years. In dealing with the later history of the building he showed that the church was fortified in 1355, and that in 1431 a new east window was given by John Durham, vicar of Norham, the cost being 13s 4d. From the time of the dissolution of the monasteries in 1564 the church was used as a storehouse for Government stores. In 1721 the building was much above what it was now, as they would see from Buck's engraving. Before 1784 the whole of the east window was destroyed, and in 1821 the walls which were buried were cleared out, but as it was done at a period before people cared to preserve old remains, a great deal of the tiled pavement and the bases of the altar were destroyed. In 1840 repairs were undertaken by the Commissioners of Woods and Forests, and since then the ruins had remained as they were until the excavations were made by Sir William Crossman.

The company adjourned into the cloister garth, where Mr Hodges addressed them further on objects of interest there. The word "garth" was, he said, an old Saxon word, from which we derived our modern word "garden"—an enclosure, a space surrounded on all sides by buildings. This square was bounded on the north by the nave of the church, and the other three sides were occupied by the domestic buildings, or the rooms in which the monks dwelt in the different portions of the day. The cloister there was extremely small—66 feet by 35 feet. The place was defended on all sides—in fact, it was as much a castle as it was a church. At the conclusion of his address, Mr Hodges pointed out the places where the recent excavations had been conducted, and described some of the results that had been achieved. Thanks to Mr Hodges were moved, and carried by acclamation. £200 had been spent on the excavations at the date of meeting.

From the ruins of the Abbey the visitors proceeded to a building near the Manor house where Sir William Crossman has placed all the pre-Conquest sculptured stones which formerly lay about the ruins, and other sculptured stones, and also the objects

discovered during the recent excavations. He exhibited several interesting documents relating to Holy Island, amongst which was a parchment roll (see Raine's *North Durham*, p. 157), showing the descent of several properties on the island from the 15th century; also the Division of the Common, and the Manorial Charter of title; and the Plan of the recent excavation of the domestic buildings of the Abbey. Here is also preserved a small circular headed grave-stone, 8 feet by $6\frac{1}{2}$ feet, of the Hartlepool type, of pre-Conquest date, which had been found in the church-yard. This is decorated with a cross formed of lines with concentric circles at the ends of the arms with the inscription in two lines across—AELBERCT. There were many fragments of coarse pottery; also a square stone incised with a circle, divided by a line perpendicularly, and by another crossing it at right angles so as to constitute a cross: the apices of the lines joined by other lines to form a rhombus. It is of the size of a butter-print, and perhaps had been one. There was a wedge-shaped stone like a conical celt, but it was only a sharpening stone formed of the trap of the island, from the Whin Sill to the east of the abbey. There were several slices of lead like those used for enclosing glass, and some melted lead; a few Nuremberg tokens; and a few copper and other coins, one of which carried a Scots Thistle. Of the nature of these, Sir William Crossman wrote me of date 5th Feb., 1888: "As regards the coins or rather brass tokens of which we have picked up only about half a dozen, I was in Edinburgh the other day, and showed them to Dr. Anderson at the Museum of Antiquities, he said they were no doubt Nuremberg counters used as tokens—for money I presume—in the Abbeys of Scotland—on one was the name of the maker, who, Dr. Anderson said, was known to be such *HANNSKRAVWINKEL*. Many of the legends were as you say [Sir William had sent drawings of one] only letters or words to fill up the rims, meaning nothing—13th and 14th centuries. We found one Edinburgh groat of Robert II., and an eighty Thistle mark of James VI. The only other piece was a foreign medal, probably of about the time of the Reformation. On one side is the Pope, who on being turned upside down became His Satanic Majesty—with the legend *ECCLESIA PERVERSA TENET PACTUM DIABOLO*: and on the other a cowed monk, who on being turned upside down became a fool with cap and bells; and the legend *RAPIENTES ALIQUONDAM STULTI*. But little has been found—everything

dissolution." Mr Keeling, the vicar, described the church.

"The church consists of chancel, nave with two aisles, and a quaint 18th century bell-turret at the west end. The chancel is of Early English date. In the east wall is a triplet of lancets, in the south wall are three lancets, a door and a low-side window, also a piscina, in the north side two lancets and another low-side window. The chancel arch is of the 15th century as is also the south arcade of four large bays, the columns being octagonal; the north arcade consists of 4 large Transitional Norman round-headed arches, and a smaller arch at the west end; the north aisle is known as the Haggerston aisle. There are several hatchments on the walls to members of the Selby, Haggerston and other families. In the south aisle are the remains of a piscina, an aumbry, and of the screen, belonging to a chantry, probably that of the Virgin. The fine Early English north door of many mouldings is about to be reopened, the present entrance being by the south door. Before 1860 the nave was considerably lower than at present, but the floor was raised to do away with damp. On the floor of the south porch is a slab with the matrix of a brass representing a layman at full length, with inscription below and shields in angles." For other monuments see Raine's History of North Durham, pp. 149-151: Dr. Johnston's Visit to Holy Island, Hist. of Club, VII., pp. 33, 34, 36, 39, 40, 41.

There was neither leisure nor opportunity amidst such a crowd for the Club to discharge its own proper functions. Dr. Charles Douglas who had been staying at Holy Island, exhibited *Cakile rugosa*, which still maintains its position. Captain Norman, R.N., had examples of *Poa maritima* from Tweedside.

Dr. Stuart had brought *Carduus setosus* from Norway. It was remarked that it was not required in the vicinity of the island; as there was already too much of the common *Carduus arvensis* in the corn-fields. The old monks kept their thistles in check. See Club's Hist. II., p. 65, note. Mr Muirhead had brought specimens of nice drawings of birds-nests by Mrs Muirhead, and proofs of engravings for tail pieces for his work on the Birds of Berwickshire; and Mr Ferguson, Duns, allowed some of the company a view of the drawings for a paper he is writing on the architectural remains of the Pre-Reformation Churches of Berwickshire. Nearly all the northern members had to leave early. It is interesting to note that this visit to Holy Island was on the anniversary of the death of St Aidan, the first bishop of Lindisfarne.

CANONBIE.

The meeting for the Canonbie district was held on September 12th. This was the Club's first visit to Dumfriesshire. The meeting was sparsely attended; but those who attended were fully rewarded, for a more beautiful country has seldom been visited by the Club. The Geological features were most interesting, and presented a new field to those who came from the north and east. The meeting place was also very accessible, so that there was no excuse for absence on that score, and easy to get away from, although not adapted for dining at, unless by staying all night in the neighbourhood. The weather was most favourable and from that day forward ameliorated till the year was crowned with harvest. There was, however, a dim haze that obscured the range of blue hills in the Lake country. Nothing could be finer than the well-wooded and treed vale of Canonbie, and its surrounding frame-work of rolling hills, and the wealth of glittering streams.

The meeting was at Riddings Junction, near the meeting of the Liddel and Esk; admittance to the woods being given from the Railway by the Station Master who keeps a key. On this side of the Liddel we were in Cumberland, and on the Netherby estate. The Liddel and Esk are pure limpid streams with gravelly margins. *Epipactis latifolia* was picked up in the wood which was very moist. *Polygonum acre* was very plentiful on the neglected roadway; and I never saw more of it than in the cultivated fields bordering the wood. The soil on the steep wooded bank is of Red Sandstone origin. The native trees here are Alder, Birch, and Hazel on all the streams, mixed with Oaks and Ashes and planted Beeches. Access to the Mote of Liddel was obtained by a footpath at the top of the wood. This was a central sub-conical high green mount, forming a prominent object from the vale below. Its features were chiefly natural, but they had been dressed off by human labour, and surrounded by a deep moist ditch, which had an entrance at the south side. The eastern pointed section appeared to be composed of gravel, sand and soil; a flattened portion of the hillock, had at its west corner a subquadrangular area, enclosed by an earthen wall as if to protect cattle. To the west, another and separate but lower division of the hill had been fenced by an external stone wall; and its area had once been planted with Scotch firs, the stumps

of several of these still being left; possibly this was once a small walled-in plantation. A few scattered white-thorns also remained. The Mote is a well-known landmark. "The Cumbrians," writes Mr H. Kerr, "have no old world stories connected with their Mote. They have a local couplet on the junction of the two streams, the Esk and the Liddel on the vale below, which sets forth that

"The Esk and Liddel
Run astriddle, (a-straddle)
And meet at the Mote."

An extensive red sandstone quarry (of a pinky red) is wrought near the Mote, and the stone is greatly in request, being taken to Melrose and Galashiels to erect houses; and it is also much employed for tomb-stones, as was observed at Canonbie and Wauchope churchyards. It is soft when cut, but hardens after exposure. It is of *Permian origin* or New Red Sandstone. A white sandstone quarried near Riccarton, is equally useful.

Netherby mansion-house was not far distant but was invisible in the enveloping woods.

Leaving the Mote the company walked by the planting side and then through fields of a poor thin wet mixed yellowish sandy and clayey soil, much requiring drainage. On the hedge bank much wild-strawberry grew. Blue-bells (*Campanula rotundifolia*) were scarce. Fox-gloves were scattered in the drier spots. The fields were overrun with *Polygonum acre* in the water-logged furrows. *Mentha arvensis* was a field weed; also *Cerastium vulgatum*, *Bartsia Odontites*, *Gnaphalium Germanicum* and *G. uliginosum*; and *Scabiosa succisa* in the pastures. The ground on the Cumberland side was minutely subdivided into small fields, mostly under culture; the farm houses were mostly white-washed and blue-slated. Large flocks of geese were kept in the very bare grassy enclosures. In general, the country was extensively wooded with Oak, Beech, and Fir plantations. The tops of the potato plots were already much blasted and frost-bitten. Farther on some very good crops of Sandy Oats were being cut. From the tract that we had traversed most extensive prospects of the singularly varied alternations of dusky wild hills, gentler mostly cultured slopes, and stripes of greener dale, surrounding us, were caught. To the north were the Dumfriesshire billowy hills and the fair vale of the Esk—the Whita or White hill, near Langholm, that bears General Sir John Malcolm's obelisk—the great dark

hill above the waste of Tarras, with the detached green hill of Tinnis, the final outlier of this front range. Then rose to the east the great Liddesdale peaty-looking fells; Peel Fell having the pre-eminence; the others were the Larriston and Riccarton hills. Small wreaths of mist like strayed sheep rested on their slopes or curled round the peaks, and then momentarily disappeared. The Brampton Fells came into view, in a brown mass beyond swelling ground to the south. The Cumberland hills were swathed in mist to-day, but Skiddaw and Saddleback had been visible on the previous evening from the Priory Hill near Canonbie Station. Not far off, the road to the Bewcastle district and Nichol forest was very marked passing up to a bush on a hill, which was all minutely cultivated, and sub-divided by fences.

Mr Bowie has kindly favoured me with an itinerary of the day's work, which I shall follow and occasionally enlarge. Passing Riddingshill farm on the left, we ceased walking. A carriage engaged from Canonbie took us up at the small village of Blackloaning-end, and then turned eastward passing the farms of Barns and Glendinning-rigg on the right, and the farms of Dykehead and Beyond the Wood, and Penton Bridge Inn on the left. At the Inn an excellent luncheon was partaken of, which had been provided by Mr Amos the landlord, who had received previous notice. From the engravings and notices on the walls, greyhound coursing, and horse races appeared to be much in vogue hereabouts. From the turnpike road leading to the inn, the hills of Carbie and Greena on the east, and Harelaw or Harlaw, with Tinnis and Whita &c., on the north were distinctly seen. Harlaw, a swelling rounded hill, lay in front of us, much divided by hedge-rows. This was once the possession of the notorious Hector Armstrong,* who in 1569 betrayed Thomas

* Sadler's State Papers and Letters by Sir Walter Scott, II., p. 100, note; the editor hesitates whether he should not be called Græme.

In the list of "The Rydors and Ill-doers upon the Borders, of date 1563 (printed in the Trans. of Border Club, part I.,) and therefore almost contemporary, we have "Hector Armestronge of the Harlawe, and his freinds and allies." 1. "Hector Armestronge called Ould Hector. 2. Hector, his sonne called Younge Hector, married Fargus Grame's daughter." This shows the near kinship of the Armstrongs and Græmes, but the latter had no possession here. There were other 5 Armestrongs at Harlaw, (p. 42.) "Fargus Grame" was brother of "Riche Grame of Netherby." There was another alliance, Will Grame of the Fald, a son of Will Grame of the Fald, who was a brother of "Old Riche's" "married Hector Armestronge's daughter of Harlowe," (p. 53.)

Percy, Earl of Northumberland, who had sought refuge with him, to the Regent of Scotland, and gave origin to the proverb: "A man who betrays his friend or benefactor is fit for Hector's Cloak." The ruins of the foundations of Hector's Peel are near Penton Linns. The locality of Harelaw and its false-hearted owner has by Mackenzie (Northumberland, I., p. 375, note,) and modern Guide-books, been misapplied to Harelaw near Paston in the parish of Kirknewton.

Leaving the inn we drove northwards passing Penton Farm and Penton House on the left, and Penton Corn Mill and Penton Railway Station on the right. Crossing the railway by a high stone bridge, Mr Bowie called attention to a great "mineral fault" in the railway cutting—a short distance west from the bridge—by which the strata are depressed on both sides from an anticlinal axis. We then descended the steep slope to Penton Bridge which spans the river Liddel and is the boundary between Cumberland and Dumfriesshire.

"From Penton to the Mote," says Mr H. Kerr, "the scenery on both banks of the Liddel is most beautiful and the reaches of the stream are seen glittering here and there amid the trees. Penton Linns, which lie below the bridge, is a place of great natural beauty, and is much visited by excursionists from Carlisle and elsewhere. The river here rushes through deep gorges cut in the sandstones and limestones, and the cliffs are overhung with finely foliated trees, while the splintered and carved rocks are covered with ivy, ferns and a profusion of flowers."

With Mr Bowie again to guide us, we leave the carriage at the north end of the bridge, and walk down the Scotch side of the river, both sides being wooded, to "the *Head* of the Linns, which take this name from the great 'mineral fault' seen in the railway cutting. This 'fault' forms a great curve in the strata, or an anticlinal ridge. Its course is nearly due N. and S., and *throws down* nearly vertical or on edge to the west, many hundred feet—the carboniferous thick Limestone with the overlying 'Millstone Grit' strata. The latter strata have been denuded, but the limestone has withstood denudation. Continuing our walk through the Linns, with the vertical 'Millstone Grit' strata towering above our heads, we arrived at the narrow discharge or outlet of the river at the *Foot* of the Linns, and observed the junction of the New Red Sandstone with the Millstone Grit strata."

So far Mr Bowie; I shall now bring up my own observations. By the road side, before reaching the bridge, there is much wild-strawberry. The descent to the river is by a footpath through a wood. Cow-wheat, Bilberry, Sanicle, Herb Mercury. *Clinopodium vulgare*, *Teucrium scorodonia*, *Hieracium boreale*, *H. vulgatum*, *Melica uniflora*, *Luzula sylvatica*, *Bromus giganteus* and *B. asper*, and *Brachypodium sylvaticum*, mixed with Hazels, Mountain Ashes, Oaks, Bird Cherries, Honeysuckles, and Guelder Roses—the remaining representatives of the ancient woodland. The ferns were *Lastrea dilatata*, and *Blechnum Spicant*. By the river grew a large *Carex*, perhaps *riparia*, but the preserved specimens are in poor condition. Among the mosses, although Mr Archibald Jerdon had here gathered *Distichium capillaceum* a rarish hill-moss, there was not any rarity observed. *Fontinalis antipyretica* grew in the pools; *Dicranum pellucidum* among the rocks, and covering the moistened boulders; *Funaria hygrometrica*, in yellow sand, in the fissures of the wasting sandstones. In the gravel, *Cardamine sylvatica* became manifest; and a patch of *Mimulus luteus*. *Scrophularia nodosa* was also seen, but observations were necessarily cursory.

The Linns are a wild scene, the mossy-coloured water after the recent rains boiling among the rounded headed mass of rocks, with which the channel is strewn a far way down below the bridge; but the most wonderful sight here is the Mountain Limestone Strata with their accompanying shales and sandstones, bent round saddle-back wise, and the rocks in the cliffs participating in the mighty flexure. The limestone rocks and accompanying bituminous shale show embedded the Encrinites, St. Cuthbert's beads, Producti, Spirifers, and other characteristic corals and shells of the Mountain Limestone; and the Sandstones are pitted with the remains of casts of fossil wood, possibly Lepidodendrons. The uplifted strata gradually become more horizontal on the banks at the foot of the Linns, when they are suddenly interrupted by a gap, and then a series of red sandstones follow and slope away, unconformably at a different angle. These form the commencement of the New Red Sandstone quarried at the Mote Quarry. Nearly midway down the gorge a very high water-mark cut on an oak showed the height the river rose to in July 1849, during a thunderstorm on the Langholm Common Riding day. The Water Crow and the Grey Wagtail were the only birds visible at the Linns. Above Penton

Linns, and from where it unites with the Esk, the Liddel forms the boundary between Scotland and England, "for miles away up to Kershope foot, among the wild fells and morasses, the scenes of so many forays and fights in the old moss-trooping days."

Having again resumed the carriage we drove in the direction of Archerbeck. Many plants of the *Carduus arvensis* near the road had white flowers; and there were bushes of broom at intervals among the grass. Then the Archerbeck ravine, which is deep, with prettily wooded banks, is crossed at the bridge. There was much fruit on the Wild Roses, and the Hagberry (*Prunus Padus*) here; and the Guelder Rose was frequent, it being so all about the neighbourhood. I shall again take counsel with Mr Bowie. "Crossing the bridge that spans Archerbeck burn, the attention of our party was called to the great Millstone Grit *fault* which cuts off the 'Canonbie Coal-field' to the east. Its course is nearly due N. and S.—parallel to the great *fault* at the railway cutting and at Penton Linns—both joining the great New Red Sandstone fault on the south. Continuing our drive westward we pass Blinkbonny Coal Pit, which is 300 feet in depth, having an excellent winding engine and a ventilating fan extracting 20,000 cubic feet of air per minute. The quantity of coal drawn from this pit, is at present 120 tons per day. We then drove onwards, passing the Colliery cottages, to the Engine Pit, which is 500 feet in depth, provided with an excellent *Coupled* winding engine, and also a large pumping engine discharging 100,000 gallons of water per day. The daily quantity of coal produced from this pit was a few years since, 300 tons per day, but owing to underground difficulties it is at present considerably less. The Coal-field contains 7 workable seams, the aggregate thickness being 30 feet, and there are 200 men and boys employed. I may mention that the Canonbie Coal-field is in the Upper Coal measures proper, corresponding in every feature to the West of Cumberland or Whitehaven Coal-field.

The great New Red Sandstone fault throwing the Coal-field down to the south west, is about 120 yards south of 'Engine Pit,' and we have arranged to prove the strata beyond the fault by boring next spring, and expect to find an extensive field but at a great depth, perhaps 1,000 feet."

This Coal-field is on the property of the Duke of Buccleuch.

Continuing our drive westwards, passing Canonbie Railway Station and Prioryhill House, we turned northwards at the old

toll house and ascended to a height called the Mount, where the view of the encircling hills is free of every obstruction, and the best to be got in a clear day. It includes the Brampton Fells, the hills of the Lake country, Criffel far away, the truncated peak of Burnswark, Whita beside Langholm, Tinnis, and several prominences of unknown nomenclature in Wauchope and Eskdales. Between us and Tinnis lay the Tarras morass, so noted in Border story, as a place of refuge for the thieves of the Debateable Land, who were extirpated by Sir Robert Cary; not wild and forbidding as we might expect, but now for the most part cultivated, and showing smiling farm houses and green fields, and sheltering plantations. The farms here as in Cumberland are much subdivided into small compartments, and the houses are invariably white washed, and dark slated.

Of Burnswark and Criffel the following is told by Mr H. Kerr, who is a native of Dumfries. “‘Burnswark and Criffel’ were once household words in Dumfriesshire, and if two youngsters happened to quarrel, a not unfrequent occurrence, one or more of their mothers would inevitably exclaim, ‘Thae laddies wad feet (fight) if the ane was on the tap o’ Burnswark, and the ither on Criffel.’” Burnswark might be 20 or 30 miles away, but far beyond it lay the glittering Solway in the bright sunshine, and still more remote the Cumberland coast, traversed by a train emitting white smoke. Carlisle was within nearer ken as was indicated by its white smoke.

Passing Byreburnside farm, we proceeded onwards to the head of Byreburn glen with Gilnockie school and the mansion of Claygate in the distance, and turned westward down the glen going under the railway viaduct spanning the Byre burn, which is upwards of 100 feet high. Borings for coal have been made in this glen. It is richly wooded with Oaks, Firs, and Beeches, and contains some good trees, especially a beechen avenue near the foot, now being thinned out. About the middle is a fine water-fall—the Fairy Linn, which has been rather spoiled by a recent slip of sandstone. As we passed we noticed *Melica uniflora* and *Hieracium boreale* near the road. The Guelder Rose was again prevalent. We issued from this shady ravine on to the Langholm road, below the Lee Mote, an elevated clear space on the top of the bank of the shape of a boat supposed to have been once fortified, and turning northwards and skirting the banks of the Esk, we arrived at Gilnockie Bridge. Old Gilnockie stood on

an elevation in a corner at the east end of the bridge, but there are now no structural remains. It has been planted with Beeches and Limes, which are now of considerable age. It overhangs by a steepish cliff or bank well clad with Bilberry bushes, the river Esk, and within view of the grey upright walls of the Hollows Tower on the grassy holm on the further side of the river. It had been surrounded by water from the Esk, and there being no bridge then, was isolated, and rendered secure from attack. The portion of the river that had been conducted round the tower is now filled up, and forms a depression, but its exit into the Esk at the south-east side remains open. Here Dr. Snodgrass read a letter from Thomas Carlyle's brother on the traditionary site of Johnnie Armstrong's castle. On the bridge grew much of *Asplenium Ruta-muraria* and *A. Trichomanes*. *Encalypta streptocarpa* abounds on the mortar. The bridge had its own advantageous command of sights. Southwards *down* the river Esk, the banks are finely wooded and the river sweeps along between broken crags fantastically shaped. The steep rocks here are called the Cat-Clints. Here one of the old Duchesses of Buccleuch had a bower to which she resorted to enjoy the fine view up and down the river. This is now dilapidated by the action of the river having undermined the rocks on which it was erected. Looking northwards *up* from the bridge, Gilnockie or Hollows Tower is the main object of interest. The Hollows corn mill lies on the west side. Mr Bowie has here to remark "that the thick Limestone beds are well exposed in the river near the bridge, and are the same beds that were seen at Penton Linns, forming a *semicircular* basin or margin having the Coal Measures, Lower and Higher, in the centre, with the east and west points running into the great New Red Sandstone Fault, lying S.E. and N.W. like the string of a bow." We then drove northwards, passing the village of Hollows, and arrived at the entrance to Gilnockie Tower.

The tower is in good preservation; about 4 storeys high; oblong in shape, with very small windows; doorway square; the stones above the door and some of those in the building have *Stigmaria* impressions. The materials had been obtained from the neighbourhood. The chimneys are crenellated and the gables have crow steps; the battlements are the finest architectural feature: there being a pretty well preserved rope pattern at the top of the moulding. The vault was only dimly seen. It will

be recollected that an incised stone with spirals forming the door sill of this vault, was engraved from Mr R. B. Armstrong's "Hist. of Liddesdale" &c., in Club's Hist. Vol. x., Plate V*: and referred to at pp. 346-7. The second storey was ascended to by a ladder. There is a plain spacious fine old fire-place with stout jambs; above the mantel-piece is a series of stones laid obliquely edgewise. On the floor grew a quantity of *Æthusa cynapium* which was in blossom; also Common Groundsel and *Cardamine sylvatica*. The upper storey was also reached by ladder. Young Ash-trees, Wild Roses, Knap weeds and grasses grew round the battlements. The charming sweep of wood surmounting the grey rocks rising from above a bend of river opposite, was one of the finest scenes we had looked at during the day's journey. A drawing of the fine tower at Gilnockie should be obtained for the Club.

Higher up the river on the opposite side from Knittyholm lies Glencartholm where fossil fishes and plants of new species were discovered by the Ordnance Geological Surveyors. The fishes were Ganoid with shining bony plates or scales like those of Sturgeons, Bony Pike, *Scarus*, etc. A dealer in curiosities from Carlisle, I was told, employed three men for several days to collect specimens here for sale. The fishes and plants have been described and figured in the Transactions of the Royal Society of Edinburgh. There was no time to linger; and here owing to the necessities of the train most of the members were forwarded to the Gilnockie Station for their several destinations. Those who stayed then went on to Canonbie. Nowhere were finer displays of Phlox blossoms than in the cottage gardens between the Hollows Tower and Canonbie; and also in almost every garden at Canonbie. On our way we passed Nottyholm where William Russell, the historian of "Modern Europe," died in 1793. He was born at Windydoors in Selkirkshire in 1741.

Canonbie church and churchyard were naturally the first objects of attention. The church externally has a somewhat castellated aspect, presenting a striking appearance from a distance; and is of great size, being seated for 1000 people, and well fitted up in the interior. There are four elegant silver Communion Cups, very thin in the plate, supposed to have been manufactured out of two. The inscription is "CANONBY CHURCH, 1792." The Hall marks are | $\frac{WC}{BC}$ | a thistle | L | a head or bust. | The

old plain pewter plate for the collections is not inscribed. The Bell has on it, *John Lee, Newcastle-on-Tyne, 1767.*

In the churchyard the only remains of the old church is a Norman arch of red sandstone with a row of dog-tooth ornaments placed in quatrefoils. An old residenter (Mr Bell, Langholm) recollects of its being included in the old church, in a rather concealed position. He also said that this old church was thatched with heather, and that a young man when shooting at some pigeons or jackdaws set fire to the roof with the gun "colfin," and the kirk was burnt to the bare walls. The perpetrator fled the district for a time. There were numerous Border names on the monuments, Grahams, Armstrongs, Littles, Bells, Beatties, all clan names. Several stones had on them death's heads and cross-bones, as well as implements of trade. By a walk on the exterior of the churchyard and glebe alongside the river the visitor is brought opposite a fine section of Red Sandstone, which is of a particularly rich tint in the sunshine, and retains its glow even after sunset. This overhangs a very deep pool, called the Dead pool, where, before a bridge was erected to cross the river, numerous people had been drowned in returning from church. Below the pool is a ford, and it was when the river rose suddenly that people were entrapped. An instance was mentioned from the Session Records of Kirk Andrew's parish in Cumberland, when 15 or 16 were drowned at once here, and only two boys escaped. The recorder regarded it as a divine punishment on these people for deserting their own church, and going to the sacrament at Canonbie. This red rock simulates the aspect of the New Red Sandstone, but it is actually of the Carboniferous group, but stained with red by the colouring matter of a New Red Sandstone formerly overlying it, but now swept away, which had oozed through the porous rock underneath. A strong bed of gravel topping this at a great height above the present river, appears to represent an ancient river channel before Canonbie holm was hollowed out. By a slip on the bank a wealth of flowering broom and honeysuckle has been precipitated into the river.

Dinner was at the Cross Keys, a famous old hostelry on the Carlisle and Edinburgh road, now a resort of anglers. The Rev. Dr. Snodgrass occupied the chair. Mr Thomas Black Short, Quay Walls, Berwick; Mr Matthew Mackey, 8 Milton Street, Newcastle; Mr William John Robinson, Newmoor House,

Morpeth; and Mr Robert Mowat, 3 Spence Street, Edinburgh, were proposed as Members; and Mrs Culley of Coupland Castle as a Lady Member. There were present at the meeting: Rev. Dr. Snodgrass, Canonbie; Mr Hardy, Secretary; Dr. Edward Johnson, Kelso; Mr Henry Rutherford of Fairnington; Mr John Scott Dudgeon, Longnewton; Mr Alexander Bowie, Priory Hill, Canonbie; Mr William Guthrie, Hawick; Mr David M. Watson, Hawick; Mr Robert E. Moffat, Gowanlee, Canonbie; Mr John M. Bowie, Priory Hill, Canonbie; Mr Edward J. Wilson, Saughtree; Mr James Tinline, Newcastle; Mr Alexander Simpson, Edinburgh; Mr Little, Cairnsgill, Westerkirk; Mr John Turnbull, Selkirk.

Dr. Snodgrass read some notes on the History of Canonbie church, from which he may afterwards furnish a paper for the Proceedings.

The meeting terminated with a charming walk in the evening, it being quite a pleasure to have dry weather overhead, in this quiet retreat. Many of the trees were of great size, with broad spreading umbrage—of Oak, Ash, Sycamore, Variegated Maple, Beech and Horse Chestnut. The Beech trees were unusually full of mast, and less in the leaves than in ordinary seasons. A thin film of mist spread over the pasture, where the cows were at rest. The peaceful evening had invited out the Bats. The grass fields on the ridge north of the river Esk were peculiarly white—the autumnal lea-colour—the “Canonbie lea” of the ballad.*

During the day many of the heavy flying black fly, with reddish legs, *Bibio Johannis*, were hovering about. Their epoch is St. John’s day, so they were somewhat late in their advent; as the Common Martins were assembling on the telegraph wires preparatory for an early departure. There was another contrast here. The Spotted Flycatcher still frequented the manse garden, while the Missel Thrushes had commenced pilfering the ripened yew tree berries.

On the subsequent day, Dr. Snodgrass drove me to Langholm, and on our return we called at Mr Doughty’s cottage at Byre burn foot, to see his photographs of the best trees on His Grace the Duke of Buccleuch’s Estates, that had been exhibited at the Forestry Exhibition in Edinburgh. Mr Doughty, we found, was of Berwickshire origin, and he has kindly presented the Club with a list of these trees.

* “Dick of the Cow.”—Minst. Scottish Border.

Photographs of the following Trees were exhibited in Edinburgh International Forestry Exhibition 1884, from His Grace the Duke of Buccleuch's Eskdale Estate.

REPRESENTATIVE OAK, "THE DUKE."

Growing at Stubbholmbank near Langholm.

Cubic contents (including limbs) 232 feet.

Height, 60 feet. Altitude, 200 feet.

Situation, sheltered. Soil, Loamy Gravel. Subsoil, Gravel.

Age upwards of 300 years.

OAK IN IRVINE HOUSE FIELD.

$20 \times 35 = 168$	}	318 feet.
Limbs = 150		

Altitude, 200 feet. Height, 60 feet.

Situation, low and sheltered. Soil, Loam on Gravel.

Probable age 3 or more hundred years.

SYCAMORE AT HAGG.

Favourite Tree of the late Duke of Buccleuch.

$40 \times 50\frac{3}{4} = 743$	}	803 feet.
Limbs = 60		

Height, 90 feet. Altitude, 200 feet.

Soil, Loam and Gravel. Situation, low sloping bank.

Age say about 200 years.

SYCAMORE AT GILNOCKIE COTTAGE.

No. 1.	$29\frac{1}{2} \times 4$	$18 \times 25 = 78$	}	118 feet.
	Limbs	= 40		

No. 2.	$40 \times 18 =$	90 feet.
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No. 3.	$12 \times 21 = 36$	}	72 feet.
	$23 \times 15 = 36$		

No. 4.	$36 \times 26 =$	169 feet.
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Soil, Loam (Sandy.) Altitude, 410 feet.

Say age 200 years.

SYCAMORE, SKIPPERS' BRIDGE.

$14 \times 35 = 119$	}	233 feet.
$24 \times 18 = 54$		
Limbs = 60		

Height, 70 feet. Altitude, 230 feet.

Situation, sheltered. Soil, Thin Loam or Gravel.

This tree was much broken by the storm of 14th October, 1881, but is now rapidly recovering its original formation.

Age 200 years.

REPRESENTATIVE SILVER FIR, DEANBANKS, OPPOSITE
LONGWOOD.

No. 1.	45 × 31½ = 310	}	672 feet.
	20 × 35½ = 175		
	Tips = 187		
No. 2.	10 × 40½ = 113	}	563 feet.
	50 × 36 = 450		

Height, 112 feet. Soil, Black Loam.

Situation, by Esk river side.

Age say 150 years.

REPRESENTATIVE ASH, FORGE.

Containing 302 cubic feet.

Height, 70 feet. Altitude, 140 feet.

Situation, sheltered. Soil, Gravelly Loam.

Age about 300 years.

After reaching home I sent a few observations on the geological features that had come under notice to Mr Hugh Miller, F.G.S., etc., who had surveyed the adjacent district of Cumberland, asking his opinion on some doubtful points. He has kindly replied in a valuable letter, extracts from which forming an interesting comment on the day's work, follow :

“The Red Sandstone quarries near Liddel Moat are in one of the sandstones of the St Bees' group of the Permian formation :—genuine New Red therefore, all the other sandstones which you mention [the red scaur opposite Canonbie church] in your letter are *Stained Carboniferous*, not New Red at all, only coloured up, and turned out to *look* like New Red. There is nothing New Red about them but the colour. Curiously enough, however, while they themselves are pure Carboniferous, the red colour, produced by peroxide of iron, *is* genuine New Red. In recent geological times, *comparatively* recent, that is, they have been covered by an extension of the Liddel Moat Sandstone, now denuded away; and the colour permeated down. You find it passing furthest down through the most porous sandstones. The shales, less permeable, are often imperfectly stained while the sandstones have become of a warm red: but the shales where stained have taken on the colour more deeply and are often almost disgustingly sanguinary. I have seen sections where the unhealthy blood red had soaked down into shales along their joints, and spread out therefrom in patches so obviously the result of a down-drip of red as to make one think almost

sickeningly of the shambles. The limestones take the colour very evenly, fossils included. A large part of East Cumberland is occupied by these *Stained Carboniferous* beds. Thus in the bed of the River Line, within a few miles of where you were, you can walk for miles on the upturned edges of sandstones, encrinital limestones, shales, and stigmarian clays, all more or less stained, and with just as much claim to be classed as New Red as the sandstones to which you referred in your letter. Geologists of limited experience are very liable to be deceived by this coloration.

“The fault which was pointed out to you in the Railway Cutting near Penton bridge is the same nearly E. and W. dislocation which you again saw below the Linns. The direction of its down throw, but not the amount, is known. You will readily understand that as it brings stained sandstones against unstained the down throw must be on the side which shews the colour, the sandstones on the other side having lain too deep to be reached by the saturation of red peroxide. The same line of reasoning shews the fault to be of Post Permian age—*i.e.* subsequent to the staining. But like many other faults of N. England it may have existed *previous* to the deposit of the New Red, and have increased its throw afterwards. In fact it is possible that the strains which produced these faults have in some instances not ceased even yet, they need not have been produced by any one sudden convulsion. This Penton fault by the way was for a long time deemed to represent the Pennine Fault of England. This view has not been borne out by my survey of the adjacent parts of East Cumberland.

“The position of the Canonbie Coal-field has long been a puzzle. It is denoted in Dr Arch. Geikie’s Geological Map of Scotland (1876) as true Coal Measures. This it certainly is not. More probably it is a local development of coal seams in the strata which in East Cumberland represent the Carbonaceous Group of North Northumberland, being thus not far from the horizon of the Scremerston Coals. The limestones of the Penton Linns etc., belong to the same division of the Carboniferous Limestone series. But when I speak of these beds as of the same general age as the Scremerston Coals, I must not be understood as indicating strict contemporaneity. The Carbonaceous Beds of North Northumberland are a thousand feet thick. In North Tynedale they are at least 2500 feet thick, and in East Cumber-

land probably thicker still. Did the thousand feet of bed take only as long a forming as the 2500 ?

“ You are quite right in identifying the beds of the Scars at Tarras foot as Tuedian. But at Gilnockie, the dip being steadily down stream, we are in one of the higher groups. The fish and plants found at *Glencartholm* by the Geological Survey of Scotland, and *afterwards* visited by Dr. Traquair, &c., were described in the Transactions of the Royal Society, Edinburgh by Traquair (fishes) and Kidston (plants.) The fishes were mostly of new species.”

BERWICK.

THE ANNUAL MEETING was held at Berwick on October 10th. There was a favourable day, and a good attendance, about 40 being present. A visit was first paid to Mrs Barwell Carter's house as in duty bound to the memory of the originator of the Club, Dr Johnston. Mrs Johnston's original drawings to illustrate her husband's writings, and Miss Dickinson's excellent paintings of British plants, were open for inspection. Mrs Barwell Carter had also obtained from Mr William Ingram, Belvoir Gardens, to show the Club, what was called the “Hop *Origanum*.” This is the *Origanum Tournefortii* of Sibthorpe in Aiton's Hort. Kew, vol. II., p. 311, 1st Edition, III., p. 42, 2nd Edition, Dittany of Amorgos. This shrub was found by Tournefort in the Island of Amorgos in the Archipelago, among rocks near the monastery of the Blessed Virgin, and was introduced into Britain in 1788 by John Sibthorpe, M.D., author of “*Flora Græca*.” It is said to have the habit of *Rhodiola rosea*. Mr Ingram had also sent *Vitis hamalifolia*, which bears a small grape of cerulean blue, which is used for decorative purposes only. Mrs. Barwell Carter also showed a series of views of the recent excavations at Holy Island, and several etchings of the old castles in the neighbourhood of Berwick, which were kindly sent by Mr William Green, photographer, Berwick. Among other curiosities was a sketch of a huge oak leaf, 17 inches long, which Mr M. T. Culley, President of the Club, brought from Coupland.*

The walls of Berwick were perambulated at 12.15 under the guidance of Mr John Scott, Rector of the Corporation Academy, and author of the History of Berwick. They began at the

* Club's Hist. IX., p. 321.

Cowport Gate where the perambulation ceased last year, and went round the rest of the Ramparts, the most interesting portions of which were indicated by Mr Scott.

The meeting took place in the museum about 1.15 p.m., when there were present : Mr M. T. Culley, Coupland Castle, President ; Mr James Hardy, Secretary ; Mr Robert Middlemas, Treasurer ; Major-General Sir William Crossman, R.E., K.C.M.G., M.P. ; Colonel Forster, Castlehills ; Rev. William Dobie, Ladykirk ; Rev. Peter Mearns, Coldstream ; Rev. J. Stark, South Shields ; Rev. Evan Rutter, Spittal ; Sir George Douglas, Bart., Springwood Park ; Mr George P. Hughes, Middleton Hall ; Mr James T. Mack, Coveyheugh ; Mr George H. Thompson, Alnwick ; Mr Adam Robertson, Alnwick ; Mr James Heatley, Alnwick ; Mr William Wilson, Berwick ; Mr Robert Weddell, Berwick ; Mr E. Willoby, junr., Berwick ; Mr James Thomson, Shawdon ; Mr William Weatherhead, Berwick ; Mr J. L. Newbigin, Alnwick ; Mr R. G. Bolam, Berwick ; Mr George Bolam, Berwick ; Mr John Bolam, Bilton House ; Mr John Scott, Berwick ; Mr Adam Robertson, junr., Alnwick ; Mr John Dunlop, Norham ; Mr William Robertson, Alnwick ; Mr William T. Hindmarsh, Alnwick ; Mr John Ferguson, Duns ; Mr George Fortune, Duns ; Mr John Broadway, Berwick ; Mr William Lyall of the Literary and Philosophical Society, Newcastle ; Mr Peter Loney, Marchmont. The Club was honoured on this occasion with the presence of a number of ladies, including Mrs Culley, Coupland Castle ; Mrs Muirhead, Paxton ; Miss Smail, Berwick ; Miss Dickinson, Norham, etc.

The President opened the proceedings by reading the Annual Address, and at the conclusion, handed to the Secretary a few Natural History Notes, and the fac-simile of the enormous Oak-leaf grown at Coupland. Mr Hardy the secretary then read the Proceedings of the various meetings during the year ; and then called attention to the photos and drawings brought to the meeting by Mr Thomson, Shawdon ; including Crawley Tower, Edlingham Castle and Church, the Corbie Crag ; the King of the Woods ; also drawings by Mr H. P. Taylor of a Roasting Implement, and the Water Bougets of the Lilburns from Shawdon, and other objects of antiquarian interest collected during the season.

The following new members were elected : Major-General J. J. Boswell, C.B., Darnlee, Melrose ; Mr Hugh Macpherson

Leadbetter, Legerwood, Earlstoun; Rev. George Cook, Longformacus, Duns; Sir Edward Grey, Bart., M.P., of Falloden; Mr Ralph Galilee Huggup, Gloster Hill, Warkworth; Mr John Turnbull, 51 High Street, Hawick; Mr John Rosecamp, Shilbottle Colliery, Lesbury; Rev. W. D. La Touche, Warkworth; Mr John Thomas Carse, Amble, Acklington; Mr Edward Fisher, F.S.A. Scot., Abbotsbury, Newton Abbot, South Devon; George Wood, Exchange Buildings, Jedburgh; James D. Strang, Jedburgh; Thomas Smail, Jedburgh; H. Masternon, Union Street, Kelso; Rev. James Marshall Lang Aikin, Ayton; T. B. Short, 21 Quay Walls, Berwick; Matthew Mackey, 8 Milton Street, Newcastle; William John Robinson, Newmoor House, Morpeth; Robert Mowat, 3 Spence Street, Edinburgh; R. T. N. Howey-Taylor, Beadnell House, Chathill; Lieut.-Col. Anthony Marshall, Annstead, Chathill; Mr Thomas Mathison, Wandylaw, Chathill; Mr Richard Archbold, Alnwick; Mr George Bolam, Bilton House, Lesbury; Mr James Stevenson, Architect, Berwick. Lady Members—Mrs. Paul, Roxburgh Manse; Mrs. Culley, Coupland Castle; Miss Georgina S. Milne Home, Milne Graden, Coldstream; Miss Jean Mary Milne Home, Paxton House, Berwick-on-Tweed; Associate Member, Mr Andrew Amory, Alnwick.

A letter was read from Mr James Wilson inviting the Club to superintend the opening of a Brooch on the top of Bow-Castle, near Stow. This has since been cleared out by private efforts, but without much definite result. Drawings by Messrs Duncan and Fortune to illustrate a paper by Mr Ferguson, Duns, on Remains of Pre-Reformation Churches of Berwickshire were much admired.

Sir William Crossman was then asked by the Secretary to show a plan which he had brought of some more recent excavations at Holy Island, which he accompanied with the following observations.

Sir William Crossman said that since the members of the Club were at Holy Island in August last, he had undertaken some excavations at St. Cuthbert's Island, or as it was sometimes called Thrush Island, or Hob Thrush, which was situated off the south-west corner of Holy Island, and which was about 200 yards distant from that basaltic formation known as the Heugh. It was easily approachable at low water, and was about a quarter of an acre in area. The part above water was covered with

twitch grass. On this island there had been always known to be a chapel dedicated to St. Cuthbert, which was mentioned by the Venerable Bede, and by Dr Raine in his History of North Durham. Raine gave an inventory of the chapel at the dissolution of the monasteries. Some years ago it was stated that the walls were four feet above the ground, but they had become level with it, and were covered with some turf, but still they were distinctly traceable. He had had the walls laid bare, and found that the chapel extended 24 feet 10 inches from east to west, and 12 feet 10 inches from north to south. The east wall was three feet thick, the west wall two feet, and each of the side walls two feet six inches. On the south wall he found traces of a door, but none of any windows, as the walls were too low to show any sills. Near the door on the south wall was found a piece of worked stone which had evidently been part of the ridge stone of a porch. This was the only piece of worked stone found in the chapel, with the exception of the door sills and jambs, the walls being built of the whinstone of the island. Outside of this chapel to the westward, he found there was an enclosure running 28 feet 5 inches from north to south; and 15 feet 8 inches from east to west. The western wall was much broken down, but the other walls were in a pretty fair state of preservation, although entirely covered with earth. Steps were found from the floor of the enclosure to a platform on the north and south sides of the chapel. Whether this platform went all round the chapel it was impossible to say, and it could not be ascertained whether the enclosure was covered in or not. A door was found at the north end of the enclosure, showing that a covered passage on to the island had existed. About 17 feet from the south wall and 25 feet from the east wall of the chapel was found a rough whinstone wall which has the appearance of a break-water. What the use of this was on the east side it is hard to say, as it is much above the level of high water spring tides; and some foundations discovered afterwards to the eastward were very much below the level of high water. At the extreme south-east corner of the island, laid on the solid rock and nearly on a level with high water mark were found some foundations of a building which would appear to have been a cell or dwelling-place of a priest attached to the chapel. It seemed to have consisted of a sleeping place and a kitchen. The stones are beautifully cut and accurately laid. A room 15 feet 10 inches

wide is divided by a 4-inch wall into two divisions, one of which seems to have contained a fire-place. Close to these foundations there was found at a slightly lower level the remains of some still earlier work, and he would venture to suggest that these may fix the site of the cell to which St. Cuthbert was wont to retire before he went to Farne. Raime put down Cuddy's Cove among the sandstone hills to the west of Kylloe Crags as the spot; but as Monsignor Eyre has pointed out in his "*History of St. Cuthbert*," this place did not at all coincide with the description of Bede, who said it was a part not far from the monastery, and surrounded on all sides by water by the flowing of the tide. This description perfectly agreed with St. Cuthbert's Island, and he therefore ventured to think this was the site of the cell, and not Cuddy's Cove.

Mr John Bolam and Mr James Heatley were nominated to audit the Treasurer's accounts.

Mr John Scott Dudgeon, Longnewton, St. Boswells, was elected President for the ensuing year.

The Meetings for 1889 were fixed as follows: Glanton for Linhope, Ingram, and Hedgeley Station; Mindrum for Paxton and the country behind; Newcastleton for Liddesdale; Duns for Upper Whitadder; Beadnell; Berwick.

A vote of thanks to Mr Culley for presiding, terminated the proceedings.

Afterwards the Members dined at the King's Arms Hotel.

A List of the Marine Algæ of Berwick-on-Tweed. By
EDWARD A. L. BATTERS, B.A., LL.B., F.L.S.

Plates VII., VIII., IX., X., XI.

MORE than thirty-five years have elapsed since the last of Dr. Johnston's Lists of the Marine Algæ of Berwick-on-Tweed made its appearance. In the interval many species not previously recorded as occurring at Berwick have been added to our Flora, and, owing to the great advances which have been made in Algology, the nomenclature and classification used have become nearly obsolete. A new List, incorporating all the more recent records and changes in classification, may not, therefore, be out of place.

The number of papers which deal with the Algæ of Berwick is not great. In 1807 Mr Thompson published his "Catalogue of Plants growing in the Vicinity of Berwick-on-Tweed," but of the species of Algæ there enumerated only thirteen are Marine, and "even those few cannot safely be admitted into any future catalogue without re-examination."* In 1831 Dr G. Johnston published in the second volume of his Flora of Berwick-on-Tweed the abridged descriptions of some 80 species of Marine Algæ; and in 1853 in the "Natural History of the Eastern Borders," a revised list in which he mentions, but without descriptions, synonyms, or localities, about 90 species. A catalogue probably by Mrs A. Gatty,† in which 16 species new to Berwick are enumerated, and three short papers‡ by myself complete the list of papers which deal directly with the Marine Flora of Berwick. In Prof. G. Brady's lists§ of Northumberland and Durham Algæ, *Mesogloia vermicularis*, *Desmarestia viridis*, and *Lithothamnion calcarea* (*Sub-Melobesia*) are, so far as I am aware, the only species to which habitats within our limits are affixed which had not been recorded in any previous catalogue. In

* Johnston Flora of Berwick, vol. II., p. 328.

† Proceedings B.N.C., vol. III., p. 200 (1854).

‡ " " " " vol. X., pp. 108, 349, and 535.

§ Transactions Tyneside N.C., vol. IV. v. et seq. (1860 etc.)

preparing the present list which, with the exception of Diatoms, is intended to include all the species of Marine Algæ known to occur between Eyemouth and Holy Island, I have taken Le Jolis's "Liste des Algues Marines de Cherbourg," and Prof. Farlow's "Marine Algæ of New England," as my models, and have borrowed from them without reserve whatever was suited to my purpose.

I have given no description of those species described in Harvey's "Phycologia Britannica" and "Manual," as to have done so would have greatly added to the bulk of this paper without materially adding to its usefulness. I have, however, under each species referred to a published description,* and in most cases also to a figure of the plant named, and have added an artificial key to the Genera, adapted, with Prof. Farlow's consent, from the key given at the end of his "Marine Algæ of New England." The classification followed is, to some extent, a modification of that adopted by Dr. F. Hauck in his "Die Meeresalgen von Deutschland." The dates given for the duration and time of fruiting are of course approximate only, and referring solely to the seasons at which the plants are to be met with at Berwick, would probably mislead anyone collecting elsewhere. The genera *Leptothrix*, *Beggiatoa*, and *Cohnia* (*Clathrocystis*) have not been included in this list, as they are now, apparently with good reason, more usually classed with Schizomycetes.

For several years I have visited Berwick at all seasons for the purpose of collecting, and with very few exceptions have myself gathered every species recorded in this list. I would here express my obligations to Mr E. M. Holmes for constant assistance in the identification of species, and for valuable suggestions as to what species were likely to occur at Berwick; to Mr G. W. Traill for particulars of the species found in the Firth of Forth, and consequently to be expected on our coast; and to Mr T. H. Buffham, who has kindly taken measurements of many of the species for me. I would also return my sincere thanks to Dr. Edouard Bornet of Paris, whose kindness in examining and naming all the specimens about which I had any doubts has enabled me to give to this list a degree of accuracy it could not otherwise have possessed. I am also indebted to Dr. F. Hauck

* Where possible the reference is to a description in *English*.

of Trieste; Prof. J. G. Agardh of Lund, Dr. F. R. Kjellman of Upsala, Dr. H. Strömfelt of Stockholm, Prof. W. G. Farlow of Harvard College, Prof. J. Reinke of Kiel, and Prof. E. Perceval Wright of Dublin, for valuable assistance in the identification of species; and through the kindness of Dr. Bornet to M. Gomont for aid in identifying the *Oscillariæ*.

Before giving the list in detail it may be useful, as a guide in selecting a collecting ground, to enumerate a few of the most interesting species to be met with at the principal stations within our limits. Everywhere along the coast the oar-weeds and Fuci are abundant; *Laminaria hyperborea* (L. Cloustoni Le Jol.), *L. digitata* (L. flexicaulis Le Jol.), *L. stenophylla* and *Alaria esculenta* grow luxuriantly at low water mark; while *Fucus vesiculosus*, *F. platycarpus*, *F. serratus*, and *Ascophyllum nodosum* cover the rocks between tide-marks. Many species seldom to be met with south of Scotland such as *Dictyosiphon hippuroides*, *D. mesogloia*, *Stictyosiphon tortilis*, *S. sub-articulata*, *Euthora cristata*, *Odonthalia dentata*, etc., are abundant; and even the Arctic species *Ulothrix discifera* is not uncommon at Berwick.

To the south of the Tweed the shore is flat and sandy, interrupted sometimes by elevated ridges of sandstone rock—at others by muddy salt marshes; the stations of interest to the algologist are consequently few on this side of the river. The rocks situated between Spittal and Sermerston, however, produce a few interesting species, such as *Calothrix crustacea*, *C. scopulorum*, *Ulothrix isogona*, *Rhizoclonium riparium*, *Codiolum gregarium*, *Ralfsia verrucosa*, *R. clavata*, *Battersia mirabilis*, *Sphacelaria plumigera*, *Petrocelis cruenta*, *Hildenbrandtia rosea*, *Callithamnion polyspermum*, *C. Hookeri*, *Ceramium acanthonotum*, *Delesseria sinuosa*, *Catenella opuntia*, *Polysiphonia atro-rubescens*, etc., etc. On the salt marshes facing Holy Island, *Oscillaria littoralis*, Crn., *O. insignis*, *O. subuliformis*, *Microcoleus chthonoplastes*, *Lyngbya majuscula*, *L. æstuarii*, *Sphærozyga Carmichaelii*, *Enteromorpha Ralfsii*, *E. clathrata*, *Chætomorpha linum*, *Cladophora fracta*, and *C. flavescens* are to be found, and a few species rarely to be met with elsewhere within our limits, such as *Desmarestia ligulata*, *Mesogloia vermicularis*, *Saccorhiza bulbosa*, and *Lithothamnion calcareum* occur at the Coves, Holy Island.

North of the Tweed between the Pier and Sharper Head, *Rivularia atra* var. *confluens*, *Calothrix crustacea*, *C. scopulorum*, *Ulothrix isogona*, *Codiolum gregarium*, *Ralfsia spongiocarpa*, *R.*

verrucosa, *R. clavata*, *Dictyosiphon hippuroides*, *Stictyosiphon tortilis*, *S. sub-articulata*, *Chordaria flagelliformis*, *Myriotrichia filiformis*, *Ectocarpus confervoides*, *E. tomentosus*, *E. fasciculatus*, *E. granulatus*, *Hæmatophlæa Crouani*, *Rhododermis elegans*, var. *polystromatica*, *Rhodomela subfusca*, *Polysiphonia atro-rubescens*, *P. elongata*, *P. fibrata*, *P. parasitica*, *Dasya coccinea*, *Melobesia Lernormandi*, *Lithothamnion polymorphum*, etc., are to be found in abundance, and more rarely *Isactis plana*, *Bryopsis plumosa*, *Elachista flaccida*, *E. Areschougii*, *Phyllophora Brodiaei*, and *P. Traillii*.

The most interesting species which occur between Sharper Head and the "Needle Eye" are *Glæocapsa crepidinum*, *Microcoleus nigrescens*, *Symploca Harveyi*, *S. fasciculata*, *Lyngbya stragulum*, *Calothrix æruginea*, *C. pulvinata*, *C. fasciculata*, *Prasiola stipitata*, *Ulothrix speciosa*, *U. implexa*, *U. discifera*, *Cladophora arctiuscula*, *C. hirta*, *Elachista Grevillei*, *Sphacelaria radicans*, *S. tribuloides*, *S. racemosa*, *Ectocarpus insignis*, *E. Holmesii*, *Cruoria pellita*, *Rhodochorton Rothii*, *R. floridulum*, *Callithamnion granulatatum*, *C. Hookeri*, etc. With the exception of *Rivularia nitida* the species growing at Eyemouth and Burnmouth are equally abundant at Berwick.

Certain species I have only met with floating or amongst the rejectamenta cast ashore, such are *Saccorhiza bulbosa*, *Desmarestia viridis*, *D. ligulata*, *Chatopteris plumosa*, *Callithamnion plumula*, *Rhodophyllis bifida*, *Nitophyllum punctatum*, *N. Bonnemaïsoni*, *Delesseria ruscifolia*, *D. hypoglossum*, *Polysiphonia byssoides*, and *Bonnemaïsonia asparagoides*.

*Classes, Orders, and Genera of the Marine Algae of
Berwick-on-Tweed.*

CLASS I.—CYANOPHYCEÆ.

ORDER I.—SCHIZOPHYCEÆ.

Family—CHROOCOCCACEÆ.

Gloeocapsa.

Dermocarpa.

Polycystis.

ALGÆ INCERTÆ SEDIS.

Goniotrichum.

Family—NOSTOCHINEÆ.

Tribe I.—OSCILLARIEÆ.

Spirulina.

Oscillaria.

Microcoleus.

Symploca.

Lyngbya.

Nodularia.

Sphærozyga.

Tribe II.—RIVULARIEÆ.

Rivularia.

Isactis.

Calothrix.

Microchæte.

Mastigocoleus.

CLASS II.—CHLOROPHYCEÆ.

ORDER II.—CHLOROZOOSPOREÆ.

Family—ULVACEÆ.

Prasiola.

Monostroma.

Enteromorpha.

Ulva.

Family—CONFERVACEÆ.

Epicladia.

Gomontia.

Chætomorpha.

Ulothrix.

Rhizoclonium.

Cladophora.

Family—BRYOPSIDÆÆ.

Bryopsis.

Family—VALONIACEÆ.

Codiolum.

ORDER III.—OOSPOREÆ.

Family—VAUCHERIACEÆ.

Vaucheria.

CLASS III.—PHÆOPHYCEÆ.

ORDER IV.—PHÆOZOOSPOREÆ.

Family—SCYTOSIPHONACEÆ.

Phyllitis.

Scytosiphon.

Family—PUNCTARIACEÆ.

Litosiphon.

Punctaria.

Family—DESMARESTIACEÆ.

Desmarestia.

Family—DICTYOSIPHONACEÆ.

Dictyosiphon.

Stictyosiphon.

Family—ECTOCARPACEÆ.

Myriotrichia.

Streblonema.

Ectocarpus.

Isthmoplea.

Pylaiella.

Family—SPHACELARIACEÆ.

Battersia.

Sphacelaria.

Chætopteris.

Cladostephus.

Family—RALFSIACEÆ.

Ralfsia.

Family—MYRIONEMACEÆ.

Myrionema.

Family—CHORDARIACEÆ.

Tribe I.—LEATHESIEÆ.

Elachista.

Leathesia.

Tribe II.—EUCHORDARIEÆ.

Chordaria.

Tribe III.—MESOGLCEÆ.

Mesogloia.

Castagnea.

Family—ASPEROCOCCACEÆ.

Asperococcus.

Family—LAMINARIACEÆ.

Chorda.

Alaria.

Saccorhiza.

Laminaria.

Family—CUTLERIACEÆ.

Aglaozonia.

ORDER V.—FUCOIDEÆ.

Family—FUCACEÆ.

Halidrys.

Fucus.

Pelvetia.

Ascophyllum.

Himanthalia.

ORDER VI.—DICTYOTEÆ

Dictyota.

CLASS IV.—RHODOPHYCEÆ.

ORDER VII.—FLORIDEÆ.

Family—PORPHYRACEÆ.

Porphyra.

Diploderma.

Bangia.

Erythrotrichia.

Family—SQUAMARIACEÆ.

Peyssonnelia.

Rhododermis.

Petrocelis.

Cruoria.

Hæmatocelis.

Hæmatophlæa.

Family—HILDENBRANDTIACEÆ.

Hildenbrandtia.

Family—WRANGELIACEÆ.

Chantransia.

Spermothamnion.

Family—CERAMIACEÆ.

Rhodochorton.

Antithamnion.

Callithamnion.

Griffithsia.

Ptilota.

Gloiosiphonia.

Ceramium.

Family—CRYPTONEMIACEÆ.

Sarcophyllis.

Fastigiaria.

Dumontia.

Family—GIGARTINACEÆ.

Chondrus.

Gigartina.

Callophyllis.

Ahnfeltia.

Phyllophora.

Cystoclonium.

Family—RHODYMENIACEÆ.

Chylocladia.

Rhodymenia.

Plocamium.

Rhodophyllis.

Euthora.

Hydrolapathum.

Family—DELESSERIACEÆ.

Nitophyllum.

Delesseria.

Family—SPILEROCCACEÆ.

Gracilaria.

Family—SOLIERIACEÆ.

Catenella.

Family—GELIDIACEÆ.

Gelidium.

Harveyella.

Family—SPONGIOCARPEÆ.

Polyides.

Family—RHODOMELACEÆ.

Odonthalia.

Rhodomela.

Polysiphonia.

Bonnemaisonia.

Laurencia.

Bostrychia.

Dasya.

Family—CORALLINACEÆ.

Hapalidium.

Melobesia.

Lithothamnion.

Corallina.

MARINE ALGÆ OF BERWICK-ON-TWEED.

CLASS I.—CYANOPHYCEÆ.

ORDER I.—SCHIZOPHYCEÆ.

FAMILY—**Chroococcaceæ.**

GLEOCAPSA (KtZ.) NAEG.

GLEOCAPSA CREPIDINUM, *Thuret.*

Notes Algologiques, p. 2.

Descr. *Gleocapsa crepidinum*, *Farlow*, Mar. Alg. New Eng., p. 27.

Figs. " " *Bornet et Thuret*, l.c. pl. i., figs. 1-3;
 Farlow, l.c. pl. i. fig. 1.

Exsicc. " " *Holmes*, Alg. Brit. Rar. Exsicc., no. 66.

Syn. *Protococcus crepidinum*, *Thuret*, in Mém. Soc. Natur. Cherbourg,
vol. ii., p. 388; *Le Jol.*, Liste des Alg. Mar. de Cherb. p. 25.

Pleurococcus crepidinum, *Rabenh.*, Fl. Europ. Alg., Sec. III., p. 25.

Hab. On rocks and wood-work near high water mark, June—Oct.
 Rare. On the walls of the Quay, Berwick, sparingly. Rocks
 beyond Sharper Head.

This species, for the identification of which I am indebted to Dr. Bornet, forms dark brown gelatinous layers on wharves, posts, etc., near high water mark. The plant consists of a number of yellow spheroidal cells from .0035 to .005 mm. in diameter, usually united in twos or some multiple of two, imbedded in a brownish gelatinous stratum.

DERMOCARPA (CRN.) BORNET.

DERMOCARPA PRASINA, (Reinsch.) *Bornet.*

Notes Algologiques, II., p. 73.—*Sphænosiphon prasinus*,
Reinsch., Contrib. ad Algol. et Fungol. I. p. 17 (quoad
plantam in *Catenella opuntia* crescentem.)

Descr. *Dermocarpa prasina*, *Bornet*, l.c.

Figs. " " *Bornet*, l.c. pl. 26, figs. 6-9 (Tab. nost. VII.
 fig. 2-A.

Exsicc. " " *Holmes*, Alg. Brit. Rar. Exsicc., no. 79.

Hab. Epiphytic on *Catenella Opuntia*, *Laurencia pinnatifida*, and other small Algæ. Fruit Jan. and Feb. Not uncommon. Berwick Bay, Burnmouth, Holy Island.

A small epiphytic species composed of a number of wedge-shaped cells radiating from the base, united into hemispherical green masses. When in fruit the cells are entirely filled with the numerous round green spores. With us the plant is in fruit from December to February.

A narrow form of this species epiphytic on *Laurencia pinnatifida*, occurs at Sharper Head. It comes very near, if it is not identical with, *Sphanosiphon* (*Dermocarpa*) *incrustans*, Reinsch.

DERMOCARPA SCHOUSBOEI, (Thur.) *Bornet in litt.*

Xenococcus Schousboei, *Thur.*, Notes Algol. II. p. 73.

Descr. *Xenococcus Schousboei*, *Thur.*, l.c.

Figs. " " *Thur.*, l.c. pl. 26, fig. 1-2 (Tab. Nost. VII. fig. 2B.

Exsicc. *Dermocarpa Schousboei*, *Holmes*, Alg. Brit. Rar. Exsicc., no. 80.

Hab. Epiphytic on *Rhodochorton Rothii*, and other small Algæ, in shallow puddles near high water mark, often in company with *D. prasina*. Fruit Jan.—Feb. Rare. Berwick Bay, Sharper Head.

The genus *Xenococcus* was founded by the late M. Thuret on barren specimens of this plant collected by Schousboe in Tangier in 1825, but no form of fructification was known till the spring of 1887, when I detected the spores on specimens which I had collected at Berwick in January of that year. The fertile cellules are globose and sessile, and contain a large number of nearly round spores. It still remains to be proved whether the spores escape from the mother cell by the circular rupture, or by the dissolution of the membrane. Dr. Bornet, to whom I am indebted for the identification of this and the preceding species, has pointed out that this discovery of the fructification renders the retention of the genus *Xenococcus* unnecessary.

The species is distinguished at sight from *Dermocarpa prasina* by its nearly spherical cells, the cells of the latter species being wedge-shaped and radiating from the base.

NOTE.—Several species of Schizomycetes belonging to the genera *Beggiatoa*, *Leptothrix*, and *Cohnia* (*Clathrocystis*) are not uncommon at Berwick during the summer and autumn on mud and decaying Algæ.

Dr. Farlow in his "Marine Algae of New England," says that *Clathrocystis roseo-persicina*, which is not uncommon at Berwick, is "also found on codfish in the Gloucester market, causing what is known as the 'red fish.'" In connection with this I would call attention to a curious passage in Ray's Synopsis Ed., I. p. 3, quoted by Johnston (Fl. Berwk. II. p. 247), "*Bambergæ Northumbriæ cum essem, narrarunt mihi piscatores speciem quandam Algæ tinctoriæ in mari oram alluente copiose provenire, quæ piscium etiam transnatantium tergora colore suo inficiat. Plantam ipsam non vidimus, sed ex eorum relatione Algæ tinctoriæ J. B. affinem esse suspicabamur.*" May not the fishermen of Bamburgh have met with some "red fish," and have hastily concluded that they had been "dyed" in the manner described above?

POLYCYSTIS (Ktz.) FARLOW.

POLYCYSTIS PALLIDA (Ktz.) Farlow.

Mar. Alg. New Eng. p. 28—*Palmella pallida*, Ktz., Phyc. Germ.; Ktz. Spec. Alg., p. 212.

Descr. *Polycystis pallida*, Farlow, l.c.

Fig. *Palmella pallida*, Ktz., Tab. Phyc. I., pl. 14 (Tab. Nost. VII. fig. 1.)

Hab. On *Sphacelaria radicans*, *Gladophoreæ*, and other small Algæ in shallow puddles near high water mark. Aug.—Dec. Rare. Berwick Bay, Greenses.

A small species composed of bluish-green oval cells, arranged in several layers so as to form a solid mass. Cells about .006 mm. by .008 or .009 mm.

NOTE.—In the caves north of Dodd's Well and elsewhere along the coast, the walls are covered from a little below high water mark to considerably above it with a curious Alga which seems to belong to Borzi's genus *Hormotila*, but as yet I have been unable to find any form of fructification. The plant forms strata of considerable thickness of a yellow or yellow-green colour, often growing over other Algæ such as *Calothrix scopulorum* and *Rivularia Biasoletti*. It is composed of roundish, oval, or oblong cells filled with a granular endochrome, and surrounded by a thick cell wall. The dimensions of the vegetative cells are the same as those of *Hormotila mucigena* (Borzi Studi Algologici, p. 90, t. VIII.); but until the fructification has been seen, it is impossible to determine with certainty even the genus to which this puzzling plant belongs. With us the Alga, whatever it may turn out to be, is far from uncommon, and where it does occur is always found in abundance.

ALGÆ INCERTÆ SEDIS.

GONIOTRICHUM (Ktz.)

GONIOTRICHUM ELEGANS, (Chauv.) Zanard.

Notiz. p. 69—*Bangia elegans*, (Chauv.) Mem. Soc. Linn.

Norm. VI., p. 13.

Descr., Fig. *Bangia elegans*, Harv., Phyc. Brit. pl. 246.

Essicc. " " Chauv., Alg. Norm. VII. no. 159.

Syn. *Goniotrichum elegans*, Zan., Icon. Phyc. Adr. III., p. 67 t. 46A, fig. 3, 4; *J. Ag.*, Till. Alg. Syst. VI. p. 13; *Le Jol.*, Liste Alg. Mar. Cherb., p. 103.

Goniotrichum dichotomum, Ktz., Spec. Alg., p. 65; Ktz., Tab. Phyc. III., t. 27.

Hab. On *Sphacelaria plumigera* and *Sphacelaria radicans*. June—Aug. Very rare. Berwick Bay.

I have followed Hauck, who acted on a suggestion of Thuret (*vide* Le Jolis's Liste, p. 103,) in placing *Goniotrichum* next to the Nostochineæ, with which it should probably be classed. "The only reproduction known consists in the escape of the cells from the gelatinous sheath and a division into two new cells, then into four, and so on until a new filament is formed." (Farlow Mar. Alg. New Eng., p. 113.)

This tiny little plant grows in scattered tufts on the fronds of *Sphacelaria plumigera* and other small Algæ. Perhaps it is not so rare as has been supposed, its minute size preventing its detection even when specially sought for.

GONIOTRICHUM RAMOSUM (Thwaites) Hauck.

Meeresalg., p. 519—*Hormospora ramosa*, Thwaites, in Harv. Phyc. Brit. pl. 213.

Descr. et Fig. *Hormospora ramosa*, Harv. l.c.

Syn. *Goniotrichum cærulescens*, Zanard, Icon. Phyc. Adr. III., p. 67, tab. 46B.

Hab. On *Cladophoræ* in shallow pools of brackish water along the muddy shore at Fenham Flats. Very rare.

Except in colour *G. ramosum* closely resembles the preceding species. The tufts, however, are smaller, the branching more irregular, and the colour bluish green. My specimens are small, but answer in other respects very well to the figure and description in Phycologia Britannica.

FAMILY—**Nostochineæ.**TRIBE I.—**OSCILLARIEÆ.**

SPIRULINA, TURPIN.

SPIRULINA TENUISSIMA, Ktz.

Phyc. gen., p. 183.

Descr. Spirulina tenuissima, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg. New Eng., p. 31.*Figs.* " " *Harv.*, l.c. pl. 105, fig. C.; *Farlow*, l.c. pl. II., fig. 4; *Ktz.*, Tab. Phyc. I., pl. 36, fig. 4.*Hab.* On the muddy bottoms of tide-pools near high-water mark. Sept.—Jan. Rare. Banks of the Tweed above the old bridge.**SPIRULINA PSEUDO-TENUISSIMA, Crouan.**

Mém. Soc. Sc. Nat. Cherb., vol. II.

Descr. et Fig. Spirulina pseudo-tenuissima. *Crouan*, Flor. du Finist., p. 112, pl. 2, fig. 15.*Exsicc.* Spirulina tenuissima, *Crm.*, Alg. Mar. Finist. Exsic. 323. (Non *Ktz.*, Spec.)*Hab.* On the muddy bottoms of the shallow pools of brackish water left by the receding tide along the banks of the Tweed above the Railway bridge. Sept. Very rare.

This species forms thin, emerald-green patches on the mud in tide-pools, eventually it rises to the surface of the water in little flakes. The filaments are more slender, and not so closely coiled as those of *S. tenuissima*.

OSCILLARIA, Ktz.

OSCILLARIA LITTORALIS, Crouan,

Flor. du Finist. p. 113 (Excl. syn.)

Exsicc. Oscillaria littoralis, *Crm.*, Alg. Mar. Finist., no. 325.*Hab.* Forming a slimy dark green stratum on the mud along the banks of the Tweed and at Fenham Flats. July—Oct. Not uncommon.

I am indebted for the identification of this and most of the other species of *Oscillaria* mentioned in this list to M. Gomont. He considers my specimens belong to the same species as those distributed by Crouan in his fasciculi under the name of *Oscillaria littoralis*. Crouan's plant, however, is not identical with the *Oscillatoria littoralis*, *Carm.*, of Phycologia Britannica, but as Dr. Farlow has pointed out (Mar. Alg. New Eng., p. 33) is nearly related to *Oscillaria limosa*, *Ktz.*, var. *chalybea*.

OSCILLARIA SUBULIFORMIS, *Thwaites*,

in *Harv.*, Phyc. Brit. pl. 251B; *Farlow*, Mar. Alg. New Eng., p. 33, pl. I., fig. 5.

Hab. On the muddy sea-shore at the mouth of the Tweed, in the Caves north of Dodd's Well, and elsewhere along the coast. July—Oct. Not uncommon.

The filaments in this species are from .006—.007 mm. in diameter and taper at the end into an incurved point. The colour is bluish-green, rather brighter than in the preceding species.

OSCILLARIA LÆTEVIRENS, *Crouan*,

Liste des Alg. Mar., *Bullet. Soc. Bot. de France*, 1860; *Crn.*, Flor. du Finist., p. 112.

Hab. On the under side of overhanging mud-covered rocks. Rocks in front of Dodd's Well. Greenses. June—Nov. Rare.

This plant forms a thin, bright green, membranous stratum on mud-covered rocks often in company with *Catenella Opuntia*.

The filaments are very slender and obtuse at the ends, the articulations about as long as broad.

OSCILLARIA NIGRO-VIRIDIS, *Thw.*

in *Harv.*, Phyc. Brit. pl. 251A.

Exsicc. *Oscillaria nigro-viridis*, *Crouan*, Alg. Mar. Finist., no. 326.

Hab. Banks of the Tweed from the mouth to the Plantation. Autumn. Common.

Forming dark olive-green, almost black, slimy layers on mud and mud-covered rocks, piles, etc. The diameter of the filaments is from .009—.010 mm. When dry the dark olive colour of the living plant changes to a rich metallic green.

OSCILLARIA PERCURSA, var. *marina*, *Ktz.*

Sp. Alg., p. 247.

Descr. *Oscillaria flavo-fusca*, *Crn.*, Flor. du Finist., p. 113.

Exsicc. „ „ „ „ Alg. Mar. Finist., no. 328.

Hab. On the muddy bottoms of shallow pools near high-water mark. Aug.—Sept. Rare. Berwick Bay. Banks of the Tweed below the old bridge (mixed with other species of *Oscillaria*, such as *O. nigro-viridis* and *O. natans*.)

This plant forms slimy, brownish-yellow layers, which after a time become detached from the mud on which they grow and float to the surface of the water. In drying the colour changes

to green. The filaments are about .021 mm. in diameter, straight or slightly curved gradually tapering into an obtuse point. The articulations are about three times as broad as long.

OSCILLARIA COLUBRINA, *Thur.*

In *Le Jol.*, Liste des Alg. Mar. Cherb., p. 26.

Descr. et Fig. *Oscillaria colubrina*, *Le Jol.*, l.c., pl. i., fig. 2.

Exsicc. „ „ *Le Jol.*, Alg. Mar. Cherb., no. 216.

Hab. On mud-covered rock at half-tide level and in caves. July—Oct. Rare. Caves north of Dodd's Well, Needle Eye.

The filaments of this species are regularly flexuous, a character which they retain in drying. The plant forms blackish-green or purplish strata on mud-covered rocks in the shade. In the caves north of the target at Dodd's Well and near the Needle Eye it grows over the cushion-like patches of *Sphacelaria radicans* and *Cladophora arctiusecula*, the filaments of the *Oscillaria* interlacing with those of the plant over which it grows. So far as my observations have gone, the plant does not form layers of indefinite extent, as so many of the other species of *Oscillaria* do, but has a tendency to grow in small roundish patches hardly half-an-inch in diameter. It imparts to fresh water a copious pink dye, the colour of the filaments themselves changing to a bright emerald green. The filaments are about .018 mm. in diameter, obtuse at the ends, the articulations four times as broad as long.

OSCILLARIA INSIGNIS, *Thwaites*,

In *Harr.*, Phyc. Brit., pl. 251c.

Hab. On the muddy sea-shore, Fenham Flats and Holy Island. Local but plentiful. Aug.—Oct.

A pretty species forming blackish-green or brown layers of indefinite extent. The apices of the filaments are obtuse and ciliated, the articulations four or five times as broad as long.

OSCILLARIA ANTLIARIA (Jürgens) *Ktz.*

Phyc. Germ., p. 160, no. 28.

Exsicc. *Oscillaria antliaria*, *Rabenhorst*, Alg. Europ., no. 208.

Hab. In pools of brackish water along the muddy banks of the Tweed above the railway bridge. Autumn. Rare.

This and the four following species usually grow in fresh water, but as they are found at Berwick in company with *O. nigro-viridis*, *O. flavo-fusca*, Crn., and *O. littoralis*, Crn., which

have always been classed with Marine Algæ, I can see no valid reason for omitting them from this list. It is always a difficult matter to determine which species of *Oscillaria* should be considered marine and which fresh water Algæ. I have only admitted those species which grow within the influence of the tide.

OSCILLARIA NATANS, *Ktz.*

Phyc. Germ., p. 159, no. 10.

Descr. *Oscillaria natans*, *Ktz.*, l.c.

Fig. *Oscillaria cryptartha*, *Ktz.*, Tab. Phyc. 1. t. 40, fig. 4.

Hab. Mixed with other species of *Oscillaria*, such as *O. flavo-fusca*, *O. nigro-viridis*, etc., on the muddy banks of the Tweed between the bridges.

A more slender species than any of the preceding, the filaments being from .005 to .0053 mm. in diameter.

OSCILLARIA INFECTORIA, *Tassi*,

Erbario crittog. Ital., no. 448.

Hab. Mixed with the preceding in pools of brackish water, and on the muddy banks of the river. The filaments are only about .00125 mm. in diameter.

OSCILLARIA BREVIS, *Rabenh.*

Alg. Europ., no. 30.

Hab. Banks of the Tweed with the two preceding species.

OSCILLARIA TENUIS, *b. viridis*, *Rabenh.*

Alg. Europ., no. 1016.

Hab. Mixed with the preceding.

The nomenclature of the *Oscillariæ* is still far from settled, and no synonyms have in consequence been affixed to many of the species. In most cases a reference is given to a published specimen, and the names adopted imply that our plants belong to the same species as the specimens referred to, but not necessarily to other specimens described under the same name. For many of the measurements and references I am indebted to M. Gomont.

MICROCOLEUS, DESMAZ.

MICROCOLEUS CHTHONOPLASTES, (Fl. Dan.) *Thuret.*

Classif. Nostoc., l.c., p. 378.—*Conferva chthonoplastes*, Fl. Dan. t. 1485.

- Descr.* Microcoleus chthonoplastes, *Farlow*, Mar. Alg. New Eng., p. 33.
Figs. Microcoleus anguiformis, *Harv.*, Phyc. Brit. pl. 249; *Ktz.*, Tab. Phyc. i. t. 57; *Farlow*, l.c. pl. II., fig. 3
Syn. Chthonoblastus anguiformis, *Rabenhorst*, Flor. Eur. Alg. sect. II., p. 133.—Chthonoblastus Lyngbei, *Ktz.*, Spec. Alg., p. 262; *Id.* Tab. Phyc. i. t. 58.
Hab. On the muddy bottoms of shallow pools of salt or brackish water. July—Oct. Not uncommon. Fenham Flats. Holy Island.

MICROCOLEUS NIGRESCENS, *Thuret mscr.*

- Hab.* On the bottoms of shallow, shady rock pools near high water mark. July—Aug. Rare. Beyond the target at Dodd's Well. and in crevices of the rocks in the caves.

I am indebted to Dr. Bornet for the identification of this species. I do not know if any description of it has been published. It forms thin blackish or brownish-black layers on the bottoms of shady rock pools near high water mark, and in crevices of the rock in caves. The stratum is more or less membranous and can be torn from its attachment in pieces of considerable size, often an inch or more in diameter. The filaments in each sheath are few, the sheaths very thin, and difficult to see when the plant is re-moistened after having been dried.

SYMPLOCA, *Ktz.*SYMPLOCA HARVEYI, *Le Jol.*

Liste des Alg. Mar. Cherb., p. 29.

- Descr. et Fig.* Calothrix semiplena, *Harv.*, Phyc. Brit. pl. 309 (non aliorum.)
Exsicc. Symploca Harveyi, *Le Jol.*, Alg. Mar. Cherb., no. 139.
Syn. Schizosiphon Harveyi, *Crouan*, Flor. Finist., p. 116.
 Calothrix hydroides, *Crn.*, Alg. Mar. Finist., no. 345 (non *Carmichael.*)
Hab. In shallow tide-pools near high water mark, growing in company with *Catenella Opuntia*. Summer and Autumn. Rare. Farthing Bay, Scremerston.

SYMPLOCA FASCICULATA, *Ktz.*

Spec. Alg., p. 272.

- Descr.* Symploca fasciculata, *Farlow*, Mar. Alg. New Eng., p. 184.
Fig. " " *Ktz.*, Tab. Phyc. i. t. 75.
Exsicc. " " *Holmes*, Alg. Brit. Rar. Exsicc., no. 74.
Hab. On mud-covered rocks near high-water mark. Aug.—Sept. Rare. Farthing Bay; Coves, Holy Island.

Very closely related to *Symploca Harveyi*, but the filaments are slightly larger, varying from .009—.011 mm. in diameter.

The filaments adhere to one another in tooth-like bundles arising from a slimy membranous base,—in other respects the plant seems identical with *Lyngbya stragulum*, Ktz.

LYNGBYA, Ag.

LYNGBYA MAJUSCULA, (Dillw.) Harv.

In *Hook. Br. Fl. II.*, p. 370.—*Conferva majuscula*, Dillw., *Conf. Suppl. t.A.*

Descr. et Fig. *Lyngbya majuscula*, Harv., *Phyc. Brit.*, pl. 62; *Farlow*, *Mar. Alg. New Eng.*, p. 34, pl. 1, fig. 4.

Exsicc. " " *Wyatt*, *Alg. Danmon.*, no. 147.

Syn. " " *Ktz.*, *Spec. Alg.*, p. 283; *Crouan*, *Alg. Finist.*, no. 337; *Le Jol.*, *Liste Alg. Mar. Cherb.*, p. 29.

Hab. In shallow muddy pools near high-water mark or between tide-marks. June—Sept. Very rare. Fenham Flats, Holy Island.

By far the largest and handsomest species of *Lyngbya* found with us. The plant is popularly called "Mermaid's hair" in some parts of England.

LYNGBYA ÆSTUARII (Mertens) Liebm.

In *Krøyer's Tidskrift.* (1839) p. 492.—*Conferva æstuarii*, Mert. in *Juerg.*, *Alg. Dec. II.*, no. 8 (1816.)

Descr. *Lyngbya æstuarii*, *Farlow*, *Mar. Alg. New Eng.*, p. 34.

Exsicc. " " *Hauck et Richter*, *Phykotheke Univers.*, no. 31.

Fig. *Lyngbya ferruginea*, Harv., *Phyc. Brit.*, pl. 311.

Syn. *Lyngbya æruginosa*, Ag., *Syst.*, p. 74; *Ktz.*, *Spec. Alg.*, p. 282.
Lyngbya ferruginea, Ag., *Spec. Alg.*, p. 73.

Hab. On mud-covered rocks near high water mark. Sep.—Nov. Rare. Fenham Flats, Berwick Bay, Sharper Head.

A smaller species than *Lyngbya majuscula*, the filaments seldom more than .017 mm. in diameter. The colour, too, is much brighter than in that species.

LYNGBYA LUTEO-FUSCA (Ag.) J. Ag.

Alg. Mar. Medit., p. 11.—*Calothrix luteo-fusca*, Ag., *Aufz.* no. 41.

Descr. *Lyngbya luteo-fusca*, *Farlow*, *Mar. Alg. New Eng.*, p. 35.

Fig. " " *Ktz.*, *Tab. Phyc. I. t.* 88.

Exsicc. " " *Holmes*, *Alg. Brit. Rar. Exsicc.*, no. 67.

Syn. *Lyngbya fulva*, Harv., *Ner. Am. Bor.*, pt. III., p. 102, pl. 47F.
Lyngbya luteo-fusca, *Ktz.*, *Spec. Alg.*, p. 282; *Le Jol.*, *Alg. Mar. Cherb.*, no. 114.

Hab. In shallow mud-bottomed pools near high water mark, usually mixed with *Microcoleus chthonoplastes* and other Nostochineæ.
Aug.—*Nov.* Rare. Greenses, Fenham Flats, Holy Island.

Distinguished from *L. estuarii* by the diameter of the filaments which are from .008—.009 mm. in thickness. The colour of the filaments is greenish-yellow, or brown becoming brighter in drying or after it has been in the herbarium for a few weeks.

LYNGBYA STRAGULUM, *Ktz.*

Phyc. gen. p. 223; *Id.*, *Spec. Alg.*, p. 280.

Descr. *Lyngbya stragulum*, *Ktz.*, l.c.

Fig. " " *Ktz.*, *Tab. Phyc. t.* 86.

Hab. On mud-covered rocks and in shady tide-pools near high-water mark in company with *Microcoleus nigrescens*, *Sphacelaria radicans*, etc. *July*—*Nov.* Rare. Rocks north of the Target at Dodd's Well.

A small species of a bluish-grey colour with filaments about the same thickness as those of *Lyngbya luteo-fusca*. Except that in *Symploca fasciculata*, the filaments are united into tooth-like bundles by a mass of jelly there is nothing to separate it from this species.

NODULARIA, MERTENS.

NODULARIA HARVEYANA (Thw.) *Thur.*

Class. des Nostoch, l.c., p. 378.—*Spermosira Harveyana*, *Thwaites* in *Phyc. Brit.*

Descr. et Fig. *Spermosira Harveyana*, *Harv. Phyc. Brit.*, pl. 173c; *Farlow*, *Mar. Alg. New Eng.*, p. 31 (sub. *Nodularia*.)

Hab. In shallow pools of brackish water usually mixed with other Nostochineæ. *Aug.*—*Nov.* Rare. Banks of the Tweed both above and below the railway bridge.

SPHÆROZYGA, AG.

SPHÆROZYGA CARMICHAELII, *Harv.*

Phyc. Brit., pl. 113A.

Descr. *Sphærozyga Carmichaelii*, *Harv.*, l.c. et *Farlow*, *Mar. Alg. New Eng.*, p. 30.

Figs. " " *Harv.*, l.c. pl. 113A; *Farlow* l.c., pl. 1., fig. 3.

Syn. *Cylindrospermum Carmichaelii*, *Ktz. Spec. Alg.*, p. 294.

Anabaina Marina, *Bréb.* in *Ann. Sc. Nat.*

Belonia torulosa, *Carm. Alg. Appin. MS.*; *Harv. Man.*, 1st Ed. p. 167.

Hab. On the muddy bottoms of shallow pools of brackish water. *July*—*Oct.* Not uncommon. Banks of the Tweed. Fenham Flats.

TRIBE II.—RIVULARIÆ.

RIVULARIA, Roth.

RIVULARIA ATRA, Roth.

Catal. Bot. III., p. 340.

Descr. Rivularia atra, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg. p. 38.*Figs.* „ „ *Harv.*, l.c. pl. 239; *Farlow*, l.c. pl. II., fig. 2.*Syn.* Euactis amoena, atra, confluens, hemisphaerica, Lenormandiana et marina, *Ktz.*Linckia atra, *Lyngb.*, Hydr. Dan., p. 195 t. 65; *Johnston*, Fl. Berwk. II., p. 261.Zonotrichia hemisphaerica, *J. Ag.*, Alg. Med.*Hab.* On the rocky bottoms of shallow puddles near high-water mark. Also Epiphytic on *Corallina officinalis*, *Cladophora rupestris*, and other small Algae. All the year. Common along the whole Berwickshire coast.

A small species easily recognised by its dark colour and globose or hemispherical shape. The fronds vary in size from that of a pin's head to that of a small pea.

F. CONFLUENS (*Ktz.*) *Farlow*,*Descr.* Rivularia atra, var. confluens, *Farlow*, l.c., p. 38.*Fig.* Euactis confluens, *Ktz.*, Tab. Phyc. I. t. 77.*Emicc.* Rivularia confluens, *Crm.*, Alg. Mar. Finist., no. 335.*Hab.* On mud-covered rocks near high water mark. Rare. Greenses. Sharper Head.RIVULARIA NITIDA, *Ag.* (non *Aliorum.*)*Ag.* Disp. Alg. Suecæ., p. 44 (1817.)*Descr.* Rivularia plicata, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg., p. 38.*Fig.* „ „ *Harv.*, l.c. pl. 315.*Syn.* Rivularia nitida, *Bornet et Flahault*, Revis. des Nostoc. Heterocyst. Ann. Sc. Nat., ser. 7, vol. IV., Bot. p. 357; *Ag.*, Synopsis. Alg. Scand., p. 130; *Ag.*, Syst. Alg., p. 25; Flora Danica, t. 2518, fig. 1.Rivularia plicata, *Carm.* in *Hook.*, Brit. Flor. vol. II., p. 392 (1833); *Eng. Bot.* t. 2911; *Rabenhorst*, Fl. Europ. Alg. II., p. 208,*Hab.* On mud-covered rocks near high-water mark. Burnmouth, Eyemouth. Also on the muddy sides of shallow pools along the banks of the Tweed. Autumn. Rare.

RIVULARIA BIASOLETTIANA, *Meneghini*.

In *Zanard*, Synop. Alg. in Mar. Adr., p. 42 (1841.)

Descr. et Fig. Schizosiphon Warreniæ, *Harv.*, Phyc. Brit., pl. 316.

Syn. Rivularia Biasolettiana, *Bornet et Flahault*, Revis. Nost. Heter., l.c. p. 352.

Rivularia Warreniæ, *Thuret*, Essai de Classification des Nostochinées, Ann. Sc. Nat. Bot. 6th ser., vol. I., p. 383 (1875.)

Schizosiphon Warreniæ, *Caspary* in Ann. and Mag. Nat. Hist., 3rd ser. VI., p. 266 t. 8 (1850.)

Hab. On rocks near high-water mark exposed to the dripping of fresh water. On the walls of the caves a little to the south of the Needle Eye. All the year. Plentiful.

ISACTIS, *THURET*.ISACTIS PLANA (*Harv.*) *Thuret*,

Ess. de Class. des Nostoch. Ann. Sc. Nat. 6th ser., vol. I.—

Rivularia plana, *Harv.* in *Hook*, Br. Fl. II.

Descr. Isactis plana, *Farlow*, Mar. Alg. New Eng., p. 39.

Fig. „ „ *Farlow*, l.c. pl. II., fig. 1.

Syn. Dasyactis plana, *Ktz.*, Tab. Phyc. I., t. 73.

Dasyactis salina, *Ktz.*, Tab. Phyc. I. t. 71.

Physactis atropurpurea, *Ktz.* in *Le Jol. List*, p. 31.

F. FISSURATA, *Crn.*

Descr. Dasyactis fissurata, *Crn.*, Fl. Finist., p. 116.

Hab. On rocks between tide-marks. All the year. Rare. Berwick Bay, Sharper Head.

Distinguished from *Rivularia atra*, var. *confluens*, which it much resembles outwardly, by the filaments of which the frond is composed being parallel to each other not radiating from the base.

CALOTHRIX (*AG.*) *THURET*.CALOTHRIX CONFERVICOLA, (*Dillw.*) *Ag.*

Syst. Alg., p. 70.—Conferva confervicola, *Dillw.*, Conf. p. 39, t. 8.

Descr. Calothrix confervicola, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg. p. 36.

Fig. „ „ *Harv.* l.c. pl. 254; *Farlow*, l.c. pl. I., fig. 6.

Exsicc. „ „ *Wyatt*, Alg. Danmon., no. 229.

Syn. „ „ *Bornet et Flahault*, Revis. Nost. Het. l.c. p. 349; *Bornet et Thur.* Not. Alg. I., p. 8, pl. 3.

Leibleinia confervicola, *Endl. Gen.*, no. 57, 3rd Suppl., p. 21;
Aresch. Phyc. Scand. et Exsicc. ser. nov. 192.

Leibleinia chalybea, *Ktz. Spec. Alg.*, p. 277, *Id. Tab. Phyc. t.* 84;
Le Jol. Liste Alg. Mar. Cherb., p. 30.

Leibleinia amethystea, *Ktz. in Le Jol., Liste Alg. Mar. Cherb.*, p. 30.
Conferva confervicola, *Eng. Bot. t.* 2576; *Johnston, Fl. Berwk.*
II., p. 252.

Hab. On various small Algae, such as *Polysiphonia nigrescens*, *Ceramium rubrum*, *Chaetomorpha ærea*, &c., &c. Summer and Autumn.
Very common all along the Berwickshire coast.

CALOTHRIX ÆRUGINEA (Ktz.) Thur.

Ess. Class. Nostoch., p. 10; *Ann. Sc. Nat.* 6th Ser. Bot.
1875, vol. I., p. 381.—*Leibleinia æruginosa*, *Ktz. Phyc. Gen.*
p. 221.

Descr. *Calothrix æruginosa*, *Thur.*, l.c.

Fig. " " *Thur. et Born. Notes Algol. II.*, pl. 37.

Syn. *Calothrix æruginosa*, *Bornet et Flahault, Rev. Nost. Heter.*, l.c. p. 358.
Leibleinia æruginosa, *Ktz. Spec. Alg.*, p. 276; *Id. Tab. Phyc. I.*, t.
38, fig. 1; *Le Jol. Liste Alg. Mar. Cherb.*, p. 30.

Hab. On *Ceramium rubrum*, *Cladophoræ*, etc., in shallow pools near high
water mark. Summer. Rare. Sharper Head. Rocks North
of Dodd's Well.

Often mixed with *Calothrix confervicola*, from which it can at
all times be known by its bright emerald-green colour and small
size.

CALOTHRIX CRUSTACEA (Schousb.) Born. et Thur.

Notes Algol., p. 13, pl. IV.—*Oscillatoria crustacea*, *Schousb.*
in *Herb.*

Descr. *Calothrix crustacea*, *Farlow, Mar. Alg. New Eng.*, p. 36.

Fig. " " *Born. et Thur.*, l.c.

Exsicc. " " *Holmes, Alg. Brit. Rar.*, no. 27.

Syn. " " *Born. et Flahault, Rev. Nost. Heter.*, l.c.
p. 359.

Schizosiphon lasiopus, *Ktz., Sp. Alg.*, p. 328.

Hab. On rocks and Algae between tide-marks. Rare. Berwick Bay,
Greenses.

A smaller brighter coloured plant than *Calothrix confervicola*,
from which it can easily be distinguished under the microscope
by its numerous intercalary heterocysts.

CALOTHRIX SCOPULORUM (Web. et Mohr.) Ag.

Syst. Alg., p. 70.—*Conferva scopulorum*, Web. et Mohr. Reise., p. 195.

Descr. *Calothrix scopulorum*, Harv., Phyc. Brit.; Farlow, Mar. Alg., p. 37.

Fig. " " Harv., l.c. pl. 58b.

Syn. " " Bornet et Flahault, Rev. Nost. Heter. l.c., p. 353.

Schizosiphon scopulorum, Ktz., Spec. Alg., p. 329; Le Jol. Alg. Mar. Cherb., p. 31,

Hab. On rocks near high-water mark. All the year. Common. Greenses, Sharper Head, Spittal, Burnmouth.

CALOTHRIX PULVINATA, Ag.

Syt. Alg., p. 71 (1824.)

Descr. *Calothrix hydroides*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 306.

Syn. *Calothrix pulvinata*, Bornet et Flahault, Rev. Nostoc. Heter. l.c., p. 356; Bornet et Thuret, Notes Algol., p. 101, pl. 39; Thuret, Essai de Classif. des Nostoch., p. 10; Farlow, Mar. Alg., p. 37.

Calothrix hydroides, Carm. in Hook. Br. Fl. II., p. 369 (1833.)

Schizosiphon fasciculatus, Crouan, in Desmaz., Pl. Crypt. de France, ser. II. fasc. XI., no. 349 (non Ktz.)

Schizosiphon pulvinatus, Rabenh., Fl. Europ. Alg. t. 11, p. 242.

Calothrix pannosa, Harv., Phyc. Brit. pl. 76?

Hab. On rocks near high-water mark, and on *Pelvetia canaliculata*, and other Algæ near high-water mark. All the year. Not uncommon. Greenses, Farthing Bay, Holy Island, Scremerston.

CALOTHRIX FASCICULATA, Ag.

Syst., p. 71.

Descr. *Calothrix fasciculata*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 58a.

Syn. " " Bornet et Flahault, Rev. Nost. Heter. l.c., p. 361.

Calothrix scopulorum, Aresch., Alg. Scand. Exsic., no. 22 et 139.

Schizosiphon fasciculatus, Ktz., Spec. Alg., p. 330. Id. Tab. Phyc. II., p. 17 t. 53, fig. 1.

Calothrix Harveyi, Kjellm., Alg. Arct. Sea, p. 322.

Hab. On rocks near high-water mark. All the year. Rather rare. Rocks north of Dodd's Well, Burnmouth, Holy Island.

There seems to be some doubt as to whether Agardh's *Calothrix fasciculata* is identical with the plant described under that name in "Phycologia Britannica." Kjellman, while regarding Agardh's plant as a variety of *Calothrix scopulorum*,

considers Harvey's description and figure represent a different and distinct species which he has accordingly called *Calothrix Harveyi*. Bornet and Flahault regard *Calothrix fasciculata* as a good species, distinguished from *Calothrix scopulorum* by the fascicles of pseudo-branches attached a little above the middle of the filaments, and the numerous intercalary heterocysts.

MICROCHÆTE, THURET.

MICROCHÆTE GRISEA, Thuret,

Essai de Classific. des Nostoch., pp. 4 et 7.

Descr. Microchæte grisea, Thuret, l.c.

Fig. " " Bornet et Thur., Notes Algol., pl. xxx.

Syn. " " Bornet et Flahault, Rev. Nost. Heterocyst.
l.c. vol. v., p. 85.

Hab. On an old shell mixed with *Calothrix crustacea*. Berwick Bay.

This minute species forms greyish patches on old shells. It closely resembles a small species of *Calothrix*, but the filaments end in a rounded cell not in a hyaline hair as in the genus *Calothrix*.

MASTIGOCOLEUS, LAG.

MASTIGOCOLEUS TESTARUM, Lagerheim,

In Notarisia, 1886, no. 2, p. 65, tab. 1.

A very curious and interesting plant which belongs to the class of perforating Algæ which grow within the chalky shells of dead or living molluscs. The present species forms bluish-grey or violet stains, which at first are roundish but afterwards become irregular in outline, on old shells. It is described and figured by M. Lagerheim in Notarisia.

CLASS II.—CHLOROPHYCEÆ.

ORDER II.—CHLOROZOOSPOREÆ.

FAMILY—**Ulvaceæ.**

PRASIOLA (Ag.) LANGERST.

PRASIOLA STIPITATA, *Suhr.*

Mscr. in *Jessen* Monogr. Prasiolæ, p. 16.

Descr. Prasiola stipitata, *J. Ag.*, Till. Alg. Syst. vi., p. 86.

Fig. „ „ *Jessen*, l.c. t. ii., fig. 11-16.

Syn. Prasiola marina, *Crouan*, Alg. Mar. Finist., no. 391; *Id.*, Flor. du Finist. p. 130, pl. 9, Gen. 68. *Holmes*, Alg. Brit. Rar. no. 21.

Prasiola stipitata, *Langerstedt*, Prasiol., p. 36.

Hab. On rocks near high-water mark. Jan.—Aug. Not uncommon. Berwick Bay, Sharper Head, rocks north of Dodd's Well.

This pretty little species is to be met with plentifully during the spring and early summer, but disappears later on in the year. It forms indefinite patches, often of considerable extent on rocks near high-water mark. The fronds are very small, usually about a quarter of an inch long, and very seldom more than half an inch. They are oval, oblong, or wedge-shaped, tapering below into a short stem, the margins usually more or less crisped. Under the microscope the fronds have a tessellated appearance rendering the plant unmistakable amongst British Marine Algæ.

MONOSTROMA (THUR.) WITTROCK.

MONOSTROMA GREVILLEI, *Wittrock*,

Monostr., p. 57.

Descr. Ulva lactuca, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 243.

Syn. Monostroma Grevillei, *J. Ag.*, Till. Alg. Syst. vi., p. 101; *Hauck.*, Meeresalg. p. 424.

Enteromorpha Grevillei, *Thur.*, Note sur Syn. Ulv. p. 25.

Ulva Grevillei, *Le Jol.*, Alg. Mar. Cherb., p. 37.

Ulva lactuca, *Grev.* (non *Linn.*), Alg. Brit., p. 172.

Harv., Phyc. Brit., pl. 243; *Kütz.*, Spec. Alg., p. 474.

Id. Tab. Phyc. vi. t. 12; *Johnston*, Fl. Berwk. ii., p. 250.

Hab. Epiphytic on various small Algae in shallow pools between tide-marks, also on rocks. Jan.—May. Not common. Berwick Bay. Coves, Holy Island.

The fronds of this pretty spring species are at first saccate, and very much inflated, resembling a "Florence-flask in miniature," but when old, they are split to the base into irregular segments. The fronds, which are of a beautiful yellowish green colour, are very thin and delicate, and adhere firmly to paper in drying. As *Le Jolis* has pointed out,* the *Enteromorpha Cornucopiæ* of *Phycologia Britannica* is in all probability only a form of this species. I have gathered at Holy Island and elsewhere along the coast, specimens exactly agreeing with *Harvey's* figure and description of *Enteromorpha Cornucopiæ* which should undoubtedly be referred to *Monostroma Grevillei*.

ENTEROMORPHA, LINK. (GREEN SLAKE.)

ENTEROMORPHA INTESTINALIS (Linn) Link.

Epist. in *Hor. Phys. Berolin.*, p. 5; *Ulva intestinalis*, *Linn.*, *Spec. Plant.*, p. 1163.

Descr. *Enteromorpha intestinalis*, *Harv.*, *Phyc. Brit.*

Fig. " " *Harv.*, l.c. pl. 154.

Essicc. " " *Wyatt*, *Alg. Daumon.* no. 80.

Syn. " " *Ktz.*, *Spec. Alg.*, p. 478; *Id. Tab.*

Phyc. vi. t. 31; *Ahln.*, *Enter*, p. 15., fig. 1; *Rabenhorst*, *Flor.*

Europ. Alg., p. 312; *J. Ag. Till. Alg. Syst. vi.*, p. 131; *Hauck*,

Meeresalg., p. 426.

Ulva Enteromorpha var. intestinalis, *Le Jol.*, *Liste Alg. Mar.*

Cherb., p. 46; *Farlow*, *Mar. Alg. New Eng.*, p. 43.

Enteromorpha spermatoidea, *Ktz.*, *Tab. Phyc. vi. t. 32.*

F. GENUINA, Ahln.

Enter., p. 18, *Hauck*, *Meeresalg.*, p. 426.

Syn. *Enteromorpha intestinalis*, var. *clavata*, *J. Ag.*, *Till. Alg. Syst. vi.*, p. 131.

F. CORNUCOPÆ, Ahln.

Enter., p. 21; *Hauck*, *Meeresalg.*, p. 427.

Syn. *Ulva Enteromorpha e compressa*, e var. *Cornucopiæ* *Le Jol.*, *Liste Alg. Mar. Cherb.*, p. 45.

* *Liste Alg. Mar. Cherb.*, p. 38.

Enteromorpha intestinalis var. *Cornucopiæ*, *Ktz.*, Spec. Alg., p. 478 (non *Phycoseris Cornucopiæ*, *Ktz.*, Tab. Phyc. vi. t. 30; nec.

Enteromorpha Cornucopiæ, *Carm* in *Harv.*, Phyc. Brit. pl. 304.)

Hab. Between tide-marks. Also in the Tweed. All the year. Very common.

Many of the innumerable varieties of this very variable plant are common at Berwick. In the brackish water at the mouth of the Tweed it attains a large size, specimens a yard long being far from uncommon. It sometimes floats like a scum on the surface of the water, the inflated fronds bearing a disgusting resemblance to the intestines of some animal or to a string of "black puddings," a circumstance which suggested the specific name, as well as the local one of "water puddings."

ENTEROMORPHA LINZA (Linn.) *J. Ag.*

Till. Alg. Syst., p. 134.—*Ulva Linza* *Linn.* Spec. Plant. II., 1163.

Descr. *Ulva Linza*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 39.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 164.

Syn. *Enteromorpha Linza*, *Hauck*, *Meeresalg.*, p. 428.

Ulva Linza, *Ag.* Spec. Alg., p. 412.

Ulva Enteromorpha var. *lanceolata*, *Le Jol.* Liste, p. 42.

Phycoseris lanceolata, *Ktz.*, Spec. Alg., p. 475; *Id.* Tab. Phyc. vi. t. 17.

Phycoseris crispata, *Ktz.*, Spec. Alg., p. 476; *Id.* Tab. Phyc. vi. t. 17.

Phycoseris smaragdina, *Ktz.*, Spec. Alg., p. 476; *Id.* Tab. Phyc. vi. t. 19.

Phycoseris olivacea, *Ktz.*, Spec. Alg., p. 476; *Id.* Tab. Phyc. vi. t. 19.

Phycoseris planifolia, *Ktz.*, Spec. Alg., p. 476; *Id.* Tab. Phyc. vi. t. 15.

Hab. In rocky pools between tide-marks. May—Aug. Not uncommon. Greenses, Sharper Head, Scremerston, and Holy Island.

The long ribbon-like fronds of this species, which are usually more or less crisped at the margin, are either flat or but slightly inflated, in this respect differing from those of the preceding species. *Le Jolis* and *Farlow* unite under the single species *Ulva Enteromorpha* the following species of *Phycologia Britannica*, *Enteromorpha intestinalis*, *Enteromorpha compressa* and *Ulva Linza*. I have followed the majority of writers on the subject in regarding them as distinct species. In any case they are well marked and easily recognised forms.

ENTEROMORPHA COMPRESSA (Linn.) Grev.

Alg. Brit., p. 180.—*Ulva compressa*, Linn., Spec. Plant. II., p. 1163.

Descr. *Enteromorpha compressa*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 335.

Exsicc. " " Wyatt, Alg. Danmon., no. 165.

Syn. *Ulva Enteromorpha*, var. *compressa*, Le Jol., Liste Alg. Mar. Cherb., p. 44; Farlow, Mar. Alg. New Eng., p. 43.

Enteromorpha compressa, J. Ag., Till. Alg. Syst. VI., p. 137; Ktz., Tab. Phyc. VI., t. 38; Hauck, Meeresalg., p. 428.

Enteromorpha complanata, Ktz., Tab. Phyc. VI., t. 39.

Ulva compressa, Johnston, Fl. Ber. II., p. 249.

Hab. On rocks between tide-marks; also on woodwork. Very common everywhere along the coast. All the year.

In this species the breadth of the frond varies greatly according to the situation in which the plant grows. It is always easy, however, to distinguish the species by its simple branches, which taper to the base and are broader and obtuse at the apex. This and the other species of *Enteromorpha* which grow in the Tweed, are known to the fishermen by the name of "slake."

ENTEROMORPHA CLATHRATA (Roth.) Grev.

Alg. Brit., p. 181.—*Conferva clathrata*, Roth, Cat. Bot. III., p. 175.

Descr. *Enteromorpha clathrata*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 340.

Exsicc. " " Wyatt, Alg. Danmon., no. 34; Wittr. et Nordst., Alg. Exsicc., nos. 130 et 324.

Syn. *Ulva clathrata*, var. *Rothiana*, Le Jol., Liste., p. 50.

Enteromorpha clathrata, J. Ag., Till. Alg. Syst. VI., p. 153; Hauck, Meeresalg., p. 429; Ktz., Tab. Phyc. VI., t. 33, fig. 1.

F. PROSTRATA. Le Jol., Liste, p. 50 (sub *Ulva*.)

Hab. On mud-covered rocks between tide-marks. Rare. June—Nov. Fenham Flats.

The variety *prostrata* is the only form of this species which I have met with on this coast. As it occurs at Fenham Flats the plant forms prostrate, woolly strata, often of considerable extent, over the surface of the mud or muddy sand between tide-marks. The fronds are repeatedly branched, the branches tapering to the apex.

ENTEROMORPHA ERECTA (Lyngb.) Hook.

Br. Fl. II., p. 314.—*Scytosiphon erectus*, Lyngb., Hyd. Dan., p. 65 t. 15.

Descr. *Enteromorpha erecta*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 43.

Esicc. " " Wyatt, Alg. Danmon., no. 166.

Syn. " " J. Ag., Till. Alg. Syst. VI., p. 152.

Conferva paradoxa, Dillw., Brit. Conf., p. 10; *Ulva clathrata*, var. *erecta*, Le Jol., Liste. Alg. Mar. Cherb., p. 52.

Enteromorpha clathrata, var. *erecta*, Grev., Alg. Brit., p. 181.

Hab. In shallow pools between tide-marks. Aug.—Nov. Rare. Holy Island.

ENTEROMORPHA RAMULOSA (Eng. Bot.) Hook.

Br. Fl. II., p. 315.—*Ulva ramulosa*, Eng. Bot. t. 2137.

Descr. *Enteromorpha ramulosa*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 245.

Esicc. " " Wyatt, Alg. Danmon., no. 208.

Syn. *Ulva clathrata* var. *uncinata*, Le Jol., Liste des Alg. Mar. Cherb., p. 51.

Enteromorpha ramulosa, Ktz., Spec. Alg., p. 479; *Id.*, Tab. Phyc. VI., t. 331; J. Ag., Till. Alg. Syst. VI., p. 154; Hauck, Meeresalg.

Enteromorpha spinescens, Ktz., Tab. Phyc. VI., p. 12. t. 33.

Enteromorpha clathrata var. *uncinata*, Grev., Alg. Brit., p. 181.

Hab. On rocks; also epiphytic on the smaller Algæ between tide-marks. July and Aug. Berwick Bay. Rocks north of the "Needle Eye." Not uncommon.

A rigid, rather coarse species, distinguished by its squarrose habit and curved branches, everywhere beset with short spinelike ramuli.

ENTEROMORPHA HOPKIRKII, McCalla,

Alg. Hib. ined.

Descr. *Enteromorpha Hopkirkii*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 263.

Syn. " " J. Ag., Till. Alg. Syst. VI., p. 151; Furlow, Mar. Alg. New Eng., p. 44.

Hab. On rocks, or epiphytic on the smaller Algæ in pools between tide-marks. Aug. Rare. Berwick Bay.

A very beautiful species, easily known by the extreme tenuity of the filaments, which are as slender as those of the most delicate species of *Cladophora*, and excessively branched, the ramuli ending in a single row of cells. In the present species, and *Enteromorpha Ralfsii*, each of the large, hyaline cells contains a small bright green speck of endochrome in its centre, the rest of the cell being empty, on this account it has been proposed to remove these two species to a different genus.

ENTEROMORPHA RALFSII, *Harv.*

Phyc. Brit. pl. 282.

Descr. et Fig. Enteromorpha Ralfsii, *Harv.*, l.c.

Essicc. „ „ *Le Jol.*, Alg. Mar. Cherb., no. 230.

Syn. „ „ *J. Ag.*, Till. Alg. Syst. vi., p. 149.

Ulva Ralfsii, *Le Jol.*, Liste., p. 54.

Hab. On the sand and mud at half-tide level. Aug.—Dec. Rare.
Fenham Flats; Holy Island.

A rare species, usually found mixed with other *Enteromorpha*, and *Confervæ*. It forms yellowish-green layers over mud and muddy sand between tide-marks. The filaments are very slender and nearly simple, and like *Enteromorpha percursa* usually composed of but two rows of cells, although filaments composed of four rows are not uncommon.

ENTEROMORPHA PERCURSA (*Ag.*) *Hook.*

Br. Fl. II., p. 315.—*Ulva percursa*, *Ag.* Spec. Alg. 1., p. 424.

Descr. Enteromorpha percursa, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 352.

Syn. „ „ *J. Ag.*, Alg. Mar. Medit., p. 15; *Id.* Till. Alg. Syst. vi., p. 146; *Hauck*, Meeresalg.

Ulva percursa, *Le Jol.*, Liste. p. 55.

Tetranema percursa, *Aresch.* Phyc. Scand. Mar., p. 192. t. 2. A.

Schizogonium percursum, *Ktz.*, Spec. Alg., p. 351; *Id.*, Tab. Phyc. II., t. 99 f. 3.

Diplonema percursum, *Kjellm.*, Alg. Arctic Sea, p. 302.

Hab. On the sand between tide-marks. Fenham Flats; Berwick Bay, and elsewhere along the coast. May—Oct. Rare.

ENTEROMORPHA CANALICULATA, *novum nomen.*

Descr. *Ulva marginata*, *Le Jol.*, List., p. 53.

Essicc. Enteromorpha marginata, *Le Jol.*, Alg. Mar. Cherb. no. 208, (non *E. marginata*; *J. Ag.*, Alg. Mar. Medit., p. 16.)

Fig. Enteromorpha marginata, Tab. Nost. vii., figs. 5-7.

Hab. On rocks near high-water mark. Berwick Bay. On the walls of the Quay at the Carr Rock. Greenses.

The plant described by Le Jolis l.c. under the name *Ulva marginata* does not seem to be identical with *J. Agardh's E. marginata*, I have therefore ventured to give it a new name. The species is well marked by its slender, nearly simple, canaliculate fronds.

ENTEROMORPHIA MINIMA, *Næg.*In *Ktz.*, *Spec. Alg.*, p. 482.*Descr.* Enteromorpha minima, *Ahln.*, *Enteromorph.*, p. 48.*Fig.* " " *Ktz.*, *Tab. Phyc.* vi., t. 43; *Ahln.* l.c.,
fig. 8.*Syn.* " " *J. Ag.*, *Till. Alg. Syst.* vi., p. 135.*Hab.* On rocks and timber near high-water mark. Rare. Berwick Bay. Spittal.

A small species, from quarter to half an inch long. The fronds almost simple, tubular, obtuse at the apex. The cells composing the frond minute.

ULVA., LINN. (GREEN LAYER, OYSTER-GREEN.)

ULVA LACTUCA, *Linn.*

Spec. Plant, ii., p. 1163, and *Le Jol.*, *Liste Alg. Mar. Cherb.*, p. 38.

Descr. Ulva lactuca, *Bornet et Thuret*, *Etud. Phycol.*, p. 5.*Fig.* " " *Bornet et Thur.*, l.c. t. 2. et 3.*Evsicc.* Ulva latissima, *Wyatt*, *Alg. Danmon.*, no. 33.*Syn.* " " *Harv.*, *Phyc. Brit.*, p. 171; *J. Ag.*, *Till. Alg. Syst.* vi., p. 164; *Johnston*, *Fl.*, *Berwk.* ii., p. 250.

Ulva rigida, *Ag.*, *Spec. Alg.* 1., p. 410; *J. Ag.*, *Till. Alg. Syst.* vi., 168, t. 4. fig. 119-122.

Ulva myriotrema, *Desmaz. Zanard.*, *Icon. Phyc. Adr.* i., p. 173. t. 40.

Phycoseris rigida, *australis*, *gigantea* et *myriotrema*, *Ktz.*, *Sp. Alg.* et *Tab. Phyc.*

Hab. In pools between tide-marks. Summer and Autumn. Everywhere common.

This species is the *Ulva latissima* of "Phycologia Britannica," not the *U. lactuca* of that work.

FAMILY—**CONFERVACEÆ.**

EPICLADIA, REINKE.

EPICLADIA FLUSTRÆ, *Rke.*

Atlas deutscher Meeresalg. taf. 24; *Algenflora der westlichen Ostsee Deutschen Antheils.*, p. 86.

Hab. Epiphytic on *Flustra truncata*, etc. Not uncommon.

GOMONTIA, BORN. ET FLAII.

GOMONTIA POLYRHIZA (LAG.) *Bornet et Flahault*,

Note sur deux nouveaux genres d'algues perforantes, (Journal de Botanique no. du 16 mai, 1888.) *Codiolum polyrhizum*, *Lagerheim* in Oefversigt of Kongl. Ventenskaps-Akademiens Föerhandlingar 1885 no. 8, p. 21, tab. XXVIII.

Hab. On old shells. Not uncommon.

One of the interesting class of perforating Algæ, distinguished at sight from *Mastigocoleus* by the *grass-green* colour of the stains.

CHÆTOMORPHA, Ktz.

CHÆTOMORPHA MELAGONIUM (Web. et Mohr.) *Ktz.*

Phyc. Germ., p. 204.—*Conferva melagonium*, Web. et Mohr. Reise, p. 194.

F. TYPICA.

Descr. *Conferva melagonium*, Web. et Mohr., l.c.

Æsicc. *Chætomorpha melagonium*, Wittr. et Nordst., Alg. Exs. no. 415.

F. RUPINCOLA, *Aresch.*

Conferva melagonium, var. *rupincola*, *Aresch.*, Alg. Scand. Exs. no. 275, a.

Descr. *Conferva melagonium*, Harv., Phyc. Brit. pl. 99 A.

Æsicc. „ „ var. *rupincola*, *Aresch.*, l.c. Wyatt, Alg. Danmon., no. 221.

Hab. Forma typica at very low water mark and below. Forma *rupincola* in pools between tide-marks. All the year. Not uncommon, but never very abundant. Berwick Bay. Greenses. Burnmouth.

Easily distinguished from all other British *Chætomorphae* by its stiff rigid habit and glaucous green colour. The form growing between tide-marks is met with in deep pools, attached to stones and rocks, usually in single specimens or but very few together.

CHÆTOMORPHA ÆREA (Dillw.) *Ktz.*

Spec. Alg., p. 379.—*Conferva ærea*, *Dillw.*, Conf. t. 80.

Descr. et Fig. *Conferva ærea*, Harv., Phyc. Brit. pl. 99, B.

Æsicc. „ „ Wyatt, Alg. Danmon., no. 191.

Syn. *Chætomorpha gallica*, *Ktz.*, Spec. Alg., p. 378.

Hab. In shallow sandy pools near high-water mark. Not uncommon.
Berwick Bay. Greenses. Rocks north of Sharper Head.

A more slender, flaccid species than *Chætomorpha melagonium*, and always more or less tufted.

CHÆTOMORPHA LINUM, (Roth.) Ktze.

Phyc. Germ., p. 204.—*Conferva Linum*, Roth, Cat. Bot. 1., p. 174.

Descr. *Conferva Linum*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 150, A.

Exsicc. „ „ Crouan, Alg. Mar. Finist., no. 353; Areschoug, Alg. Scand. Exsicc., no. 183.

Syn. *Chætomorpha herbacea*, Ktze., in *Hohenacker's* Meeralgen., no. 355.

Conferva Linum, Ag., Syst., p. 97; Lyngb., Hydr. Dan., p. 147. t. 50.

Conferva capillaris, Hud., Fl. Ang., p. 598; Lightf., Fl. Scot., p. 988; Johnston, Fl. Berwk. II., p. 253.

Conferva crassa, Ag., Syst., p. 99, (non *Conferva Linum*, Alg. Danmon., no. 220.)

Hab. Prostrate on the mud and muddy sand, along the shore at Fenham Flats, usually near half-tide level. Not uncommon. July—Oct.

A coarse, rigid species, the filaments intricately twisted together into dense masses, in this respect differing from the two preceding species. It forms layers, often many yards in circumference which may be readily separated by the hand almost to any extent.

CHÆTOMORPHA TORTUOSA, (Dillw.) Kleen.

Nordl. Alg., p. 45.—*Conferva tortuosa*, Dillw., Brit. Conf. Syn. t. 46.

Descr. *Conferva tortuosa*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 54 A. and B.

Exsicc. *Conferva implexa*, Wyatt, Alg. Danmon., no. 142.

Syn. „ „ et *Conferva tortuosa*, Harv., Phyc. Brit. pl. 54, A et B

Rhizoclonium tortuosum, Ktze., Spec. Alg., p. 384; Farlow, Mar. Alg. New. Eng., p. 49.

Chætomorpha tortuosa, Kjellm., Alg. Arctic Sea.

Conferva tortuosa, Aresch., Phyc. Scand., p. 433. t. 3, fig. G; Id., Exsicc., no. 29.

Conferva intricata, Grev., Fl. Edin., p. 315.

Bangia Johnstoni, Grev., in Johnston, Fl. Berk. II., p. 260.

Hab. On rocks, and entangled amongst other Algæ, in shallow pools between tide-marks. May—Oct. Rare. Coves. Scremerston, Holy Island.

A more slender species than any of the preceding, forming dark green, woolly strata over other Algæ, or more rarely on rocks. The filaments, which are about the same thickness as, or a little thicker than those of *Rhizoclonium riparium*, are very much curled and twisted, and intricately interwoven into loose, woolly masses.

ULOTHRIX (Ktz.) THUR.

ULOTHRIX IMPLEXA, Ktz.

Spec. Alg., p. 349.

Descr. *Ulothrix implexa*, Ktz., l.c.; *Hauck*, Meeresalg., p. 441.

Fig. „ „ Ktz., Tab. Phyc. II., tab. 94; *Hauck*, l.c.

Æsicc. „ „ *Hauck et Richter*, Phyk. Univ., no. 72.

Syn. *Hormidium implexum*, Ktz., Bot. Zeit. 1847, p. 147.

Ulothrix submarinum, Ktz., Spec. Alg. et Tab. Phyc. l.c.

Ulothrix flacca, *Hauck*, Beitr. 1877, p. 298; *Dodel*, Illustr. Pflanzenleben., p. 148, fig. 28.

Ulothrix Cutleriæ, *Le Jol.*, Liste, p. 56, (non *Lyngbya Cutleriæ*, *Harv.*)

Hab. On rocks, near high-water mark, exposed to the drip of fresh-water. Jan.—May. Rare. Sharper Head, Needle Eye, Coves.

By far the most slender of all the British marine species of *Ulothrix*. In my specimens the filaments are from .0065—.009 m.m. in diameter, the cells from .005—.017 m.m. in length, generally about as long as, or a little longer than broad.

Dr. Bornet informs me that this plant, which, following *Hauck*, I have referred to Kützing's *Ulothrix implexa*, is identical with the *Ulothrix Cutleriæ* of *Le Jolis*'s "Liste" that is to say *Le Jolis* considered the plant was the same as *Harvey*'s *Lyngbya Cutleriæ*.

Professor E. Perceval Wright has kindly searched the *Harveyan Herbarium* at Trinity College, Dublin, but could find no specimens of *Lyngbya Cutleriæ*, so that the specimen in the *Harveyan Collection*, belonging to the *Linnean Society* appears to be the only type specimen of this plant in existence.

I have by permission examined this specimen and find that although indistinguishable from *Ulothrix speciosa*, it is quite distinct from the present species.

The late Miss Cutler bequeathed her collection of seaweeds, bound in two volumes, to the British Museum on the condition that it should always be kept exactly as she left it. Mr. Geo. Murray has most obligingly twice searched these volumes through from beginning to end without finding a trace of *Ulothrix* (Lyngbya Harv.,) *Cutleriæ*, or anything like it. He, however, found amongst the other Algæ preserved at the British Museum a specimen collected at Budleigh and sent to Mrs. Griffiths, labelled "*Lyngbya Cutleriæ*;" this, on examination, turned out to be indistinguishable from *Ulothrix isogona*.

I am indebted to Mr E. H. Farr for two specimens of Harvey's plant taken from an album containing a collection of sea-weeds made many years ago by Miss Cutler herself. The album contained four or five specimens of this species. One of them labelled "*Lyngbya Cutleriæ* 'New' Budleigh Salterton, April 17th, 1850" seems to have been gathered at the same time and place as the specimens which she sent to Harvey, and on which he founded the species. Like the two preceding specimens, on examination it proved to be quite indistinguishable from *Ulothrix isogona*.

I am indebted to Mr. T. H. Buffham for the following particulars of the specimens referred to above.

Specimen of *Lyngbya Cutleriæ*, Harv., from the Harveyan collection, in the Linnean Society's possession.

Fertile cells $\cdot 043$ — $\cdot 061$ mm. broad, by $\cdot 018$ — $\cdot 030$ mm. long.

Owing to the curling habit of the filaments the zoosporic mass has become ovoid in shape, the smaller end of the mass being, of course, towards the inner side of the curve.

Specimen from the British Museum Herbarium.

Fertile cells $\cdot 041$ — $\cdot 046$ m.m. broad, by $\cdot 028$ — $\cdot 052$ m.m. long, zoosporic mass nearly globose.

Specimens from Miss Cutler's album now in the possession of Mr E. H. Farr.

Fertile cells $\cdot 040$ — $\cdot 046$ broad, by $\cdot 041$ — $\cdot 060$ m.m. long.

Barren cells $\cdot 023$ — $\cdot 062$ m.m. broad, by $\cdot 024$ — $\cdot 088$ m.m. long, generally about as long as broad.

ULOTHRIX FLACCA (Dillw.) Thur.

In *Le Jol.*, Liste Alg. Mar. Cherb., p. 56.—*Conferva flacca*, Dillw., Brit. Conf. t. 49.

Descr. *Lyngbya flacca*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 300,

- Essicc.* Hormotrichum flaccum, *Crouan*, Alg. Finist., no. 347; Lyngbya Carmichaelii, *Wyatt*, Alg. Danm., no. 230.
- Syn.* Lyngbya Carmichaelii, *Harv.*, Phyc. Brit. pl. 186a.
 Hormotrichum flaccum, *Ktz.*, Spec. Alg., p. 381.
 Hormotrichum Carmichaelii, *Ktz.*, Spec. Alg., p. 382.
 Hormotrichum fasciculare, *Ktz.*, Spec. Alg., p. 382.
 Conferva flacca, *Eng. Bot.*, t. 1943; *Johnston*, Fl. Berwk. II., p. 253.
 Lyngbya flacca, *Harv.*, l.c.
- Hab.* Epiphytic on various Algæ, especially the Fuci; also on rocks and timber. Jan.—May. Common. Berwick Bay. Burnmouth, Scremerston.

ULOTHRIX SPECIOSA (*Carm.*) *Ktz.*

Spec. Alg., p. 348.—Lyngbya speciosa, *Carm.*, Alg. App. ined.

- Descr.* Lyngbya speciosa, *Harv.*, Phyc. Brit.
Fig. " " *Harv.*, l.c. pl. 186. B.
Essicc. " " *Wyatt*, Alg. Danm., no. 196.
Syn. Hormotrichum speciosum, *Crn.*, Alg. Mar. Finist., no. 349.
 Ulothrix speciosa, *Ktz.*, Tab. Phyc. II., t. 93.
- Hab.* On rocks from near high-water mark to half-tide level. Jan.—March. Rare. Greenses. Rocks north of Dodd's Well.

Although closely related to *Ulothrix isogona* the present species is brighter coloured and much more lubricous, adhering closely to paper in drying. The filaments too, have a wavy appearance which serves to mark the species. *Ulothrix isogona*, on the other hand, adheres very imperfectly to paper, is very brittle when dry, and the filaments do not become curled. Both species are distinguished from *Ulothrix flacca* by the much greater diameter of their filaments.

ULOTHRIX ISOGONA (*Eng. Bot.*) *Thur.*

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 57.—Conferva isogona, *Eng. Bot.*, t. 1930.

- Descr.* Ulothrix isogona, *Farlow*, Mar. Alg. New Eng., p. 45.
Fig. Conferva Youngana, *Harv.*, Phyc. Brit. pl. 328.
Syn. Hormotrichum isogonum, *Ktz.*, Spec. Alg., p. 382.
 Urospora penicilliformis, *Aresch.*, (in part.)
 Conferva Youngana, *Dillw.*, Conf. t. 102; *Harv.*, l.c. (non *Crouan*, Alg. Finist., no. 350.)
 Hormotrichum Younganum, *Ktz.*, Spec. Alg., p. 382.
- Hab.* On exposed rocks and timber near high-water mark. Jan.—Aug. Not uncommon. Berwick Bay, Scremerston, Holy Island.

ULOTHRIX DISCIFERA, *Kjellm.*

Spetsb. Thall. Bihang. till Kongl. Svenska Vetenskaps—
Akademiens Handlingar Band 4, no. 6, p. 52. t. 5, fig. 10-14
(Ex ipso Kjellman.)

Descr. Ulothrix discifera *Kjellm.*, l.c.

Fig. " " " " Tab. Nost. VII., fig. 8.

Hab. On rocks from high-water mark to half-tide level. Jan.—Feb.
Rare. Rocks north of Dodd's Well, Sharper Head, Spittal,
Scremerston.

A pretty species easily distinguished, under the microscope, from all other British species of *Ulothrix*. The fronds, composed of a single row of cells, which are simple below, but vertically divided into two or more parts above, are constricted at irregular intervals. Altogether the plant reminds one more of a *Schizogonium* than an *Ulothrix*.

RHIZOCLONIUM, *Ktz.*RHIZOCLONIUM RIPARIUM (Roth) *Harv.*

Phyc. Brit.—*Conferva riparia*, *Roth*, Cat. Bot. III., p. 216.

Descr. Rhizoclonium riparium, *Harv.*, l.c., *Farlow*, Mar. Alg., p. 49.

Fig. " " *Harv.*, l.c. pl. 238; *Farlow*, l.c. pl. III.,
fig. 2.

Ersicc. *Conferva tortuosa*, *Wyatt*, Alg. Danm., no. 190 (non *Conf. tort.*
Dillw.)

Conferva riparia, *Jürgens*, Algæ aquat., Dec. 2. no. 7.

Syn. Rhizoclonium salinum, *Ktz.*, *Phyc. Germ.*; *Id. Spec. Alg.*, p. 384;
Le Jol., Liste, p. 58.

Conferva riparia, *Ag.*, Syst., p. 106; *Harv.*, in Hook Br. Fl. II., p.
359; *Johnston*, Fl. Berwk. II., p. 254.

Rhizoclonium obtusangulum, *Ktz.*, *Phyc. Gen.*, p. 261. *Id.*, Tab.
Phyc. III. t. 71.

Conferva perreptans, *Carm.*, *Harv.*, in Hook Br. Fl. II., p. 352.

Hab. On mud-covered rocks near high-water mark, and along the banks
of the Tweed within the influence of the tide. All the year.
Very common. Berwick Bay, Spittal, Scremerston, Holy
Island, Burnmouth, &c.

I suspect that Berkeley's *Conferva arenicola* is only a form of
this or the next species.

RHIZOCLONIUM KOCHIANUM, *Ktz.*

Phyc. Germ. Id. Spec. Alg., p. 387.

Descr. Rhizoclonium Kochianum, *Farlow*, Mar. Alg. New Eng., p. 49.

Exsicc. Conferva arenosa, *Crn.*, Alg. Mar. Finist., no. 355.

Conferva implexa, var. *Aresch.*, Alg. Scand. Exsicc., no. 187.

Rhizoclonium Kochianum, *Le Jol.*, Alg. Mar. Cherb., no. 236.

Hab. Muddy rocks near low-water mark. Aug. Very rare. Berwick Bay.

A much more slender species than the preceding, and usually more yellow in colour. It forms thin yellowish layers over *Rhodochorton floridulum* and other Algæ near low-water mark.

I have only found the plant once, and then in very small quantity.

RHIZOCLONIUM RIGIDUM, Gobi,

Algenfl. Weiss. Meer., p. 85.

Descr. Rhizoclonium rigidum, *Gobi*, l.c., p. 86.

Exsicc. Conferva fracta f. longissima subseniplex, *Aresch.*, Alg. Scand. Exsicc., no. 273.

Syn. Cladophora fracta, *Kleen*, Nordl. Alg., p. 45.

Rhizoclonium rigidum, *Kjellm.*, Algæ of the Arctic Sea, p. 309.

Hab. Epiphytic on *Sphacelaria racemosa*. Very rare. Berwick Bay.

My specimens of this species are very small, but seem in other respects to agree fairly well with Norwegian specimens of *R. rigidum* kindly sent me by M. Foslie, to whom I am indebted for the identification of the plant.

CLADOPHORA, Ktz.

SUBGENUS—SPONGOMORPHA, Ktz.

CLADOPHORA ARCTA (Dillw.) Ktz.

Phyc. Gen., p. 263.—Conferva arcta, Dillw., Conf. Suppl., p. 67.

Descr. Cladophora arcta, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 135.

Exsicc. „ „ *Le Jol.*, Alg. Mar. Cherb., no. 145; *Aresch.*, Alg. Scand. Exsicc., no. 129.

Syn. Spongomorpha arcta, *Ktz.*, Spec. Alg., p. 417; *Id.*, Tab. Phyc. IV. t. 74.

Cladophora vaucheriaeformis, *Ktz.*, Phyc. Gen., p. 263.

Conferva vaucheriformis, *Ag.*, Syst., p. 118.

Cladophora centralis, *Ktz.*, Phyc. Gen., p. 269.

Conferva centralis, *Lyngh.*, Hydr. Dan., p. 161; t. 56; *Ag.*, Syst., p. 111; Fl. Dan. t. 1777; *Harv.* in *Hook.*, Br. Fl. vol. II., p. 358.

Hab. On rocks from half-tide level to low-water mark. All the year. Not uncommon. Berwick Bay. Coves, Holy Island. Greenses. Burnmouth.

A pretty species, well marked by its brilliant green colour, and very erect, appressed ramuli. When young the filaments are free, or but very slightly matted together at the base, the colour is very vivid, and the whole plant has a silky appearance which is quite wanting in older specimens: in this state the plant is Agardh's *Cladophora vaucheriaeformis*. When old the plant becomes spongy owing to the interlacing of the branches, "some of which are strongly recurved and rhizoidal," and loses, to a great extent, its beautiful green colour; it then constitutes the *Cladophora centralis* of Kutzing.

CLADOPHORA ARCTIUSCULA (Ktz.) Crouan,

Alg. Mar. Finist., no. 376.—Spongomorpha arctiuscula, Ktz., Tab. Phyc. iv. t. 75.

Exsicc. *Cladophora arctiuscula*, Holmes, Alg. Brit. Rar., no. 31; Crouan, l.c.; Desmaz., Exsicc., no. 475.

Syn. *Conferva arctiuscula*, Crouan, Fl. Finist., p. 127.

Hab. On muddy sand-covered rocks in the shade near high-water mark. All the year. Rare. Coves, Sharper Head, near the "Needle Eye," Spittal.

The filaments of this curious little plant are densely matted together, and form indefinite cushion-like patches over muddy, sand-covered rocks near high-water mark. The mode of growth is very characteristic, reminding one more of a *Vaucheria* than a *Cladophora*, but whether the plant is really anything more than a form of the preceding species I am not prepared to say.

CLADOPHORA LANOSA (Roth) Ktz.

Phyc. Gen., p. 269.—*Conferva lanosa*, Roth., Cat. Bot. III., p. 291.

Descr. *Cladophora lanosa*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 6.

Exsicc. *Conferva lanosa*, Wyatt, Alg. Danm., no. 194.

Cladophora lanosa, Le Jol., Alg. Mar. Cherb., no. 3; Crn., Alg. Mar. Finist., no. 374.

Syn. *Spongomorpha lanosa*, Ktz., Tab. Phyc. iv. t. 84.

Hab. On *Polyides rotundus*, *Ahnfeltia plicata*, and other small Algæ between tide-marks. April—Aug. Rare. Coves, Sharper Head, near the "Needle Eye," Rocks north of Dodd's Well.

F. UNCIALIS, *Thuret*,

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 63.

Descr. *Cladophora uncialis*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 207.

Exsicc. " " *Le Jol.*, Alg. Mar. Cherb., no. 105.

Conferva uncialis, *Wyatt*, Alg. Danm., no. 146.

Syn. " " Fl. Dan. t. 771, fig. 1; *Ag.*, Syst., p. 111.

Spongomorpha uncialis, *Ktz.*, Phyc. Gen., p. 273; *Id.*, Tab. Phyc. iv. t. 82.

Hab. On sand-covered rocks between tide-marks. May—Aug. Common. Berwick Bay. Coves, Holy Island.

A small plant forming globose bright green tufts on Algæ or rocks. It fades very much in the Herbarium. The variety *uncialis* is much more common at Berwick than the typical form, which is always small and stunted with us.

SUBGENUS—EUCLADOPHORA, FARLOW.

CLADOPHORA RUPESTRIS (Linn.) *Ktz.*

Phyc. Gen., p. 270.—*Conferva rupestris*, *Linn.*, Sp. Pl., p. 1167.

Descr. *Cladophora rupestris*, *Harv.*, Phyc. Brit; *Farlow*, Mar. Alg. New Eng., p. 51.

Fig. " " *Harv.*, l.c. pl. 180.

Exsicc. " " *Le Jol.*, Alg. Mar. Cherb., no. 47; *Crouan*, Alg. Finist., no. 369.

Conferva rupestris, *Wyatt*, Alg. Danmon., no. 95.

Syn. " " *Crouan*, Fl. du Finist., p. 127; *Johnston*, Fl. Berwk. II., p. 255.

Hab. On rocks between tide-marks and in deep water. All the year. Everywhere common along the coast.

CLADOPHORA ALBIDA (Huds.) *Ktz.*

Phyc. Gen., p. 267.—*Conferva albida*, *Huds.*, Fl. Ang., p. 595.

F. REFRACTA, *Thuret*.

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 60.

Descr. *Cladophora refracta*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 24.

Exsicc. *Conferva refracta*, *Wyatt*, Alg. Danmon., no. 228; *Cocks*, Alg. Fascic., no. 89.

Hab. In rock pools near low-water mark. Very rare. Berwick Bay.

I have only once met with this plant at Berwick and presume it to be very rare. The filaments are very slender and silky, of a pale green colour, fading to a dirty yellowish green, almost white, after it has been in the herbarium for some time. The branching is very irregular, the branches given off at wide angles, and often re-curved.

CLADOPHORA LÆTEVIRENS (Dillw.) Harv.

Phyc. Brit. (non Ktz. nec. Crouan.)—*Conferva lætevirens*, Dillw. Conf. t. 48.

Descr. *Cladophora lætevirens*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 190.

Exsicc. *Conferva lætevirens*, Wyatt, Alg. Danmon., no. 143.

Syn. *Conferva glomerata*, b. marina Roth, Cat. Bot. III., p. 237.

Conferva glomerata, b. littoralis, Johnston, Fl. Berwk. II., p. 255.

F. GLOMERATA, Thuret,

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 62.

Exsicc. *Cladophora lætevirens*, Cocks, Alg. Fascic., no. 93.

Hab. On rocks and Algæ in pools from half-tide level to low-water mark. March—Sept. Common. Berwick Bay, Holy Island, Burnmouth, Spittal.

A common species recognised by its bushy habit and yellowish colour. The filaments are coarse and rigid, and do not collapse when the plant is removed from the water.

CLADOPHORA HUTCHINSIÆ (Dillw.) Harv.,

in *Hook.*, Br. Fl. II., p. 357.—*Conferva Hutchinsiae*, Dillw., Conf. t. 109.

Descr. *Cladophora Hutchinsiae*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 124.

Exsicc. *Conferva Hutchinsiae*, Wyatt, Alg. Danmon., no. 226.

Cladophora Hutchinsiae, *Le Jol.*, Alg. Mar. Cherb., no. 213.

Syn. " " Ktz., Spec. Alg., p. 391.

Cladophora diffusa, Harv., Phyc. Brit., pl. 130; Wyatt, Alg. Danmon., no. 144.

Cladophora Hutchinsiae var. *distans*, Ktz., Spec. Alg., p. 392.

Hab. In tide-pools near low-water mark. May—Sept. Rare. Berwick Bay. Burnmouth.

A handsome coarse-growing species, with few, distant branches, and very short obtuse ramuli. The endochrome in the living plant entirely fills the internode, but on drying it contracts towards the joints, leaving a clear pellucid space in the middle of each articulation.

CLADOPHORA HIRTA, Ktz.

Spec. Alg., p. 395.

Descr. *Cladophora hirta*, Ktz., l.c.

Fig. " " Ktz., Tab. Phyc. iv. t. 1.

Ersicc. " " Holmes, Alg. Brit. Rar., no. 57.

Cladophora flexicaulis, Le Jol., Alg. Mar. Cherb., no. 84.

Syn. " " Ktz., Tab. Phyc. iv. t. 1.

Conferva flexuosa, Dillw., Brit. Conf. t. 10. (non Eng. Bot. nec. Griff.)Hab. In shallow pools near high-water mark, usually epiphytic on *Cladophora rupestris*. Dec.—March. Rare. Greenses, Rocks north of Sharper Head.

A rather coarse plant, with much the habit of *Cladophora latevirens*. The main stems are much branched, coarse and flexuous; the branches distant, with long secund ramuli. Like most other *Cladophoræ* it is in best condition in early spring.

CLADOPHORA FLAVESCENS (Roth.) Ktz.

Phyc. Gen., p. 267.—*Conferva flavescens*, Roth, Cat. Bot. II., p. 224.Descr. *Cladophora flavescens*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 298.

Syn. " " Ktz., Tab. Phyc. iv. t. 22.

Conferva flavescens, Dillw., Brit. Conf., p. 64 t. E.

Hab. In shallow muddy pools of brackish water near high-water mark. June—Aug. Rare. Fenham Flats.

A rare species, forming intricately interwoven masses which float on the surface of the water in the muddy pools of brackish water in the salt marsh at Fenham Flats. When old the colour changes from the bright green of the young plant to a pale yellow. The species differs from *Cladophora fracta* in the length of its articulations, which are eight or nine times as long as broad.

CLADOPHORA FRACTA (Fl. Dan.) Ktz.

Phyc. Gen., p. 263.—*Conferva fracta*, Fl. Dan. t. 946.Descr. *Cladophora fracta*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 294.

Ersicc. *Conferva flavescens*, Wyatt, Alg. Danmon., no. 224 (non Roth); *Cladophora fracta*, Le Jol., Alg. Mar. Cherb., no. 23.Syn. *Conferva fracta*, Sm., E. B. t. 2338; Johnston, Fl. Berwk. II., p. 255.

Hab. Floating on the surface of the water or attached to sticks, etc., in the pools of brackish water in the salt marsh at Fenham Flats. Summer and autumn. Not uncommon.

FAMILY—**Bryopsidæ.**

BRYOPSIS, LAMOUR.

BRYOPSIS PLUMOSA (Huds.) Ag.

Spec. Alg., i., p. 448.—*Ulva plumosa*, *Huds.*, Fl. Ang., p. 571.

Descr. *Bryopsis plumosa*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 3.

Exsicc. „ „ *Wyatt*, Alg. Danmon., no. 128; *Le Jol.*, Alg. Mar. Cherb., no. 82; *Crn.*, Alg. Finist., no. 400.

Syn. *Bryopsis Lyngbyæi*, *Fl. Dan.*, t. 1063.

Bryopsis plumosa, *J. Ag.*, Alg. Med.; *Ktz.*, Spec. Alg., p. 493.

Hab. In pools from half-tide level to low-water mark. April—Aug. Very rare. Greenses, Scremerston.

This pretty plant appears to be very rare at Berwick, and all the specimens which I have met with there are small and stunted. The species, however, is common both to the north and south of our limits. At Joppa on the Firth of Forth, it grows in the greatest abundance, and I have received from Mr Traill splendid specimens gathered there.

FAMILY—**Valoniaceæ.**

CODIOLUM, A. BR.

CODIOLUM GREGARIUM, *A. Braun*,

Alg. unicell., *Genera nova et minus cognita*, p. 20, pl. 1.

Descr. *Codiolum gregarium*, *Farlow*, Mar. Alg. New Eng., p. 58.

Exsicc. „ „ et *C. longipes*; *Holmes*, Alg. Brit. *Rar.* *Exsicc.*, nos. 33 et 60.

Codiolum longipes, *Wittr. et Nordst.*, *Exsicc.*, no. 458.

Syn. *C. longipes*, *Foslie*, *Arct. Havalg.*, p. 11.

Hab. On rocks near high-water mark. June—Sept. Not uncommon. Scremerston, Sharper Head, Greenses.

This minute unicellular species forms slippery, green patches, often of considerable extent, on the surface of rocks near high-water mark. The fronds are clavate above, and contain a mass of green endochrome which ultimately is transformed into spores, at the base they are prolonged into a solid hyaline stalk, which is usually longer than the clavate head, but the size of the head and the relative length of the stalk is very variable. Berwick specimens appear to belong to *Foslie's Codiolum longipes*, which seems to me hardly distinct from *Codiolum gregarium*.

ORDER III.—OOSPOREÆ.

FAMILY—**Vaucheriaceæ.**

VAUCHERIA, D. C.

VAUCHERIA THURETII, *Woronin.*

Beit. zur Kenntniss der Vaucherien, in Bot. Zeit. 1869, vol. 27, p. 157 t. 2, figs. 30-32.

Descr. Vaucheria Thuretii, *Farlow*, Mar. Alg. New Eng., p. 104.

Fig. „ „ *Farlow*, l.c. pl. iv., fig. 2.

Ersicc. „ „ *Holmes*, Alg. Brit. Rar., no. 75; *Wittrock* and *Nordstedt*, Alg. Scand., no. 228.

Syn. Vaucheria Thuretii, *Nordst.*, Algol. Smasaker, in Bot. Notiser, 1879; *Hauck.*, Meeresalg., p. 414.

Vaucheria velutina, *Ag.*, Syst. Addend., p. 312; *Harv.*, Phye. Brit., pl. 321 (pro parte.)

Hab. Along the muddy banks of the Tweed both above and below the old Bridge. July—Oct. Common.

A monœcious species forming dark-green cushion-like patches on the mud. The oval, sessile antheridia, usually produced near the apices of the filaments just above the obovate oogonia, are a great guide to the identification of the species.

VAUCHERIA SPHÆROSPORA, *Nordst.*

Algol. Smasaker in Bot. Notiser. 1879, p. 177, t. 2; *Hauck.*, Meeresalg., p. 413.

Ersicc. Vaucheria piloboloides, *Holmes*, Alg. Brit. Rar., no. 50 (non V. piloboloides, *Thur.*)

Hab. Along the muddy shores of the Tweed below the old Bridge, and in shaded crevices of the rocks between tide-marks. Rare.

A smaller species than the last, and easily recognised when in fruit by the nearly globular sessile oogonia. When growing on soft mud only the bright green tips of the filaments are visible, the lower portion of the threads being entirely buried; but when growing on mud-covered rocks it forms a sort of short turf which can be cut from the rock in large pieces.

CLASS III.—PHÆOPHYCEÆ.

ORDER IV.—PHÆOZOOSPOREÆ.

FAMILY—**Scytosiphonaceæ.**

PHYLLITIS (KtZ.) Le JOL.

PHYLLITIS ZOSTERIFOLIA, *Rke.*

Algenflora der westlichen Ostsee, p. 86.

Descr. Phyllitis fascia, *KtZ.*, Spec. Alg., p. 566.

Exsicc. „ „ *Holmes*, Alg. Brit. Rar., no. 43; *Le Jol.*, Alg. Mar. Cherb., no. 175.

Ilea fascia, *Aresch.*, Alg. Scand. Exsicc., no. 96. (Spec. thallo angusto.)

Syn. Laminaria fascia, *J. Ag.*, Spec. Alg. 1., p. 129.

Phyllitis fascia, *Le Jol.*, Liste Alg. Mar. Cherb., p. 68.

Hab. On rocks in sandy pools between tide-marks, usually near low water. April—Sept. Rare. Needle Eye, Sharper Head.

A small slender plant with very narrow strap-shaped fronds arising from a disk-like base. It grows in small tufts on stones in sandy pools near low-water mark.

PHYLLITIS FASCIA (Fl. Dan.) *Rke.*

Algenflora der westlichen Ostsee, p. 86.—*Fucus* fascia, *Fl. Dan.*, t. 768.

Descr. Laminaria fascia, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 45.

Phyllitis cæspitosa, *Bornet et Thur.*, Etudes Phycol., pl. iv.

Exsicc. Laminaria fascia, *Wyatt*, Alg. Danmon., no. 157.

Laminaria debilis, *Crouan*, Alg. Finist., no. 81.

Ilea fascia, *Aresch.*, Alg. Scand. Exsicc., no. 96 (spec. thallo latiore.)

Syn. Phyllitis cæspitosa, *Le Jol.*, Lamin. 2nd edit., p. 61; *Id.*, Liste Alg. Mar. Cherb., p. 68.

Laminaria cæspitosa, *J. Ag.*, Spec. Alg. 1., p. 130.

Phycolapathum cæspitosum, *KtZ.*, Spec. Alg., p. 483; *Id.*, Tab. Phyc. vi., t. 49.

Hab. On rocks and stones between tide-marks. Nov.—May. Not uncommon. Berwick Bay, Sharper Head, Holy Island.

A larger plant than the preceding, the fronds cuneiform, or oval, often one or two inches broad tapering below into a short stem. It is much more common and abundant with us than *P. zosterifolia*.

PHYLLITIS FILIFORMIS, *Batters.*

Linn. Journ. Bot. XVIII., p. 456, pl. 18.*

Hab. Rocks near high-water mark. Jan.—March. Rare. Berwick Bay, Sharper Head, Rocks a little south of Dodd's Well.

A small winter species forming indefinite patches, often a foot or more in diameter, on rocks near high-water mark. The strap-shaped fronds are scarcely thicker than ordinary sewing-thread, and vary from an eighth of an inch to half an inch in length. They are densely gregarious, and arise from a mass of fibrous rootlets, not from a disk-like base, as in the preceding species. The plant usually grows on rocks at extreme high-water mark in places where it must remain high and dry for a considerable portion of the day, whereas *Phyllitis fascia*, so far as I have observed, always grows between tide-marks and usually in pools where it can seldom if ever be left quite dry.

SCYTOSIPHON (AG.) THURET.

SCYTOSIPHON LOMENTARIUS (Lyngb.) *J. Ag.*Spec. Alg. I., p. 126.—*Chorda lomentaria*, *Lyngb.*, Hydr.

Dan., p. 74, t. 18.

Descr. *Chorda lomentaria*, *Harv.*, Phyc. Brit.*Fig.* „ „ *Harv.*, l.c. pl. 285.*Exsicc.* „ „ *Wyatt*, Alg. Danmon., no. 6.*Scytosiphon lomentarius*, *Le Jol.*, Alg. Mar. Cherb., no. 198.*Syn.* *Chorda filum*, var. *lomentaria*, *Kütz.*, Spec. Alg., p. 548.*Chorda fistulosa*, *Zanard*, Syn. Alg. Adr., p. 87.*Asperococcus castaneus*, *Carm.* in *Hook.*, Br. Fl., vol. II., p. 277.

Hab. On rocks and stones in pools between tide-marks. Fruit July and Aug. Very common. Berwick Bay, Burnmouth, Spittal, Holy Island.

FAMILY—**Punctariaceæ.**LITOSIPHON, *HARV.*LITOSIPHON PUSILLUS (*Carm.*) *HARV.*

Man. Ed. 2, p. 43.—*Asperococcus pusillus*, *Carm.* in *Hook.*, Br. Fl. II., p. 277.

Descr. *Asperococcus pusillus*, *Harv.*, Phyc. Brit.

* The Linnean Society have kindly permitted this plate to be reprinted to illustrate the present paper. (It is now Plate VIII.)

- Fig.* *Asperococcus pusillus*, *Harv.*, l.c. pl. 270.
Exsicc. " " *Wyatt*, Alg. Danmon., no. 58; *Litosiphon pusillus*, *Le Jol.*, Alg. Mar. Cherb., no. 12.
Syn. *Chlorosiphon pusillus*, *Ktz.*, Spec. Alg., p. 484.
Punctaria pusilla, *Crn.*, Fl. du Finist., p. 167.
Asperococcus pusillus, *J. Ag.*, Spec. Alg. I., p. 78.
Hab. Epiphytic on *Chorda filum*, and other small Algæ in shallow pools near low-water mark. June—Aug. Rare. Berwick Bay, Burnmouth.

LITOSIPHON LAMINARIÆ (Lyngb.) *Harv.*

Man. Ed. 2, p. 43.—*Bangia Laminariæ*, *Lyngb.*, Hydr. Dan., p. 84, t. 24.

- Descr.* *Litosiphon Laminariæ*, *Harv.*, Phyc. Brit.
Fig. " " *Harv.*, l.c. pl. 295.
Exsicc. *Asperococcus*? *Laminariæ*, *Crn.*, Alg. Mar. Finist., no. 64.
Syn. *Bangia Laminariæ*, *Ag.*, Syst., p. 75; *Hook.*, Br. Fl. II., p. 316; *Johnston*, Fl. Berwk. II., p. 259; *Punctaria Laminariæ*, *Crn.*, Fl. du Finist., p. 167.
Asperococcus? *Laminariæ*, *J. Ag.*, Spec. Alg. I., p. 79.
Hab. Epiphytic on *Alaria esculenta*. June—Aug. Rare. Berwick Bay, Burnmouth, Holy Island.

PUNCTARIA, GREV.

PUNCTARIA PLANTAGINEA (Roth) *Grev.*

Alg. Brit., p. 53, t. 9.—*Ulva plantaginea*, *Roth*, Cat. Bot. II., p. 243 and vol. III., p. 326.

- Descr.* *Punctaria plantaginea*, *Harv.*, Phyc. Brit.
Fig. " " *Harv.*, l.c. pl. 128.
Exsicc. " " *Wyatt*, Alg. Danmon., no. 206; *Le Jol.*, Alg. Mar. Cherb., no. 135; *Aresch.*, Alg. Scand. Exsicc., no. 170.
Syn. *Phycolapathum plantagineum*, *Ktz.*, Spec. Alg., p. 483?
Diplostromium plantagineum, *Ktz.*, Phyc. Gen., p. 298.
Zonaria plantaginea, *Ag.*, Spec. Alg. I., p. 138.
Laminaria plantaginea, *Ag.*, Syn., p. 20.
Punctaria plantaginea, *J. Ag.*, Spec. Alg. I., p. 73.
Hab. In sandy pools between tide-marks. Jan.—June. Not uncommon. Greenses, Berwick Bay, Sharper Head, Burnmouth, Holy Island.

FAMILY—**Desmarestiaceæ.**

DESMARESTIA, LAMOUR.

DESMARESTIA VIRIDIS (Fl. Dan.) Lamour.

Ess., p. 25.—*Fucus viridis*, *Fl. Dan.*, t. 886.

Descr. *Desmarestia viridis*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 312.

Exsicc. *Dichloria viridis*, *Wyatt*, Alg. Danmon., no. 56; *Crouan*, Alg. Finist., no. 90.

Desmarestia viridis, *Le Jol.*, Alg. Mar. Cherb., no. 26.

Syn. „ „ *Ktz.*, Spec. Alg., p. 570; *Le Jol.*, Liste, p. 71.

Dichloria viridis, *Hook.*, Br., Fl. II., p. 274; *J. Ag.*, Spec. Alg. I., p. 164.

Sporochnus viridis, *Ag.*, Spec. Alg. I., p. 154; *Ag.*, Syst., p. 259.

Hab. Cast ashore from deep water. Rare. Berwick Bay, Holy Island.

The exactly opposite, distichous branches, and the cylindrical or slightly compressed fronds, which turn from olive brown to verdigris green on exposure, or on being placed in fresh water, render *Desmarestia viridis* unmistakeable amongst British Algæ.

DESMARESTIA ACULEATA (Linn.) Lamour.

Ess., p. 25.—*Fucus aculeatus*, *Linn.*, Sp. Pl., p. 1632.

Descr. *Desmarestia aculeata*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 49.

Exsicc. „ „ *Wyatt*, Alg. Danmon., no. 158; *Crouan*, Alg. Finist., nos. 91, 92 et 93; *Aresch.*, Alg. Scand. Exsicc., no. 87.

Syn. „ „ *J. Ag.*, Spec. Alg. I., p. 167; *Ktz.*, Spec. Alg., p. 571; *Johnston*, Fl. Berwk. II., p. 223.

Sporochnus aculeatus, *Ag.*, Spec. Alg. I., p. 151; *Ag.*, Syst., p. 259.

Desmia aculeata, *Lyngb.*, Hydr. Dan., p. 34, t. 44 B. I.

Hab. On rocks at low-water mark and below. All the year. Cast ashore from deep water in considerable quantity, but seldom seen growing. Berwick Bay, Sharper Head, Burnmouth, Holy Island.

DESMARESTIA LIGULATA (Lightf.) Lamour.

Ess., p. 25.—*Fucus ligulatus*, *Lightf.*, Fl. Scot., p. 946, t. 29.

Descr. *Desmarestia ligulata*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 115.

Exsicc. „ „ *Wyatt*, Alg. Danmon., no. 55; *Crn.*, Alg. Finist., no. 94.

- Syn.* Desmia ligulata, *Lyngb.*, Hydr. Dan. p. 33, t. 7.
 Sporochnus ligulatus, *Ag.*, Sp. Alg. i., p. 158; *Ag.*, Syst., p. 261;
Grev., Fl. Edin., p. 287.
 Laminaria ligulata, *Hook.*, Fl. Scot., part II., p. 99.
 Desmarestia ligulata, *J. Ag.*, Spec. Alg. i., p. 169; *Ktz.*, Spec.
 Alg., p. 572; *Ktz.*, Phyc. Gen., p. 343; *Harv.*, Man., p. 23.
Hab. On rocks and stones in deep water. Occasionally cast ashore at
 Holy Island.

FAMILY—**Dictyosiphonaceæ.**

DICTYOSIPHON, GREV.

DICTYOSIPHON FENICULACEUS (Huds.) *Grev.*

Alg. Brit., p. 56, t. 8.—*Conferva feniculacea*, *Huds.*, Fl.
 Angl. II., p. 594.

Deser. Dictyosiphon feniculaceus, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 326.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 205; *Le*
Jol., Alg. Mar. Cherb., no. 86.

Syn. Scytosiphon feniculaceus, *Ag.*, Sp. Alg. i., p. 164; *Ag.*, Syst., p. 258.
 Dictyosiphon feniculaceus, *J. Ag.*, Spec. Alg. i., p. 82; *Aresch.*,
 Obs. Phyc. III., p. 30; *Aresch.*, Phyc. Scand., t. 7; *Ktz.*, Spec.
 Alg., p. 485; *Le Jol.*, Liste, p. 72; *Johnston*, Fl. Berwk. II., p.
 246.

Hab. On rocks and stones in pools between tide-marks. April—Oct.
 Common. Berwick Bay, Burnmouth, Scremerston, Holy Island.

DICTYOSIPHON HIPPUROIDES (Lyng.) *Ktz.*

Tab. Phyc. VI., p. 19.—*Scytosiphon hippuroides*, *Lyngb.*,
 Hydr. Dan., p. 63, t. 14B.

Deser. Dictyosiphon hippuroides, *Aresch.*, Obs. Phyc. III., p. 26.

Exsicc. " " *Aresch.*, Alg. Scand. Exsicc., nos. 105
 et 320; *Holmes*, Alg. Brit. Rar., no. 5.

Fig. Dictyosiphon feniculaceus, var. A., *Aresch.*, Phyc. Mar. Scand.,
 t. 6A and B.

Syn. Chordaria flagelliformis, var. B and G, *Agardh.*, Spec. Alg., pp. 66
 et 67.

Hab. Epiphytic on *Chordaria flagelliformis*, in pools near low-water
 mark. May—Nov. Common. Berwick Bay, Burnmouth,
 Holy Island.

A coarser, stronger growing plant than *Dictyosiphon feniculaceus*,
 often a foot or more long. In habit it somewhat resembles

Chordaria flagelliformis, and Prof. Agardh considers that it is only an abnormal state of that species in which the peripheral layer of horizontal filaments have not been developed. The present species is always excessively branched, the branches beset with long alternate or opposite secondary branches which are once or twice re-branched in a similar manner, whereas the fronds of *Chordaria flagelliformis* are subsimple furnished with long branches which are either naked or furnished with a few simple ramuli.

Dictyosiphon mesogloia, Aresch.

Obs. Phyc. 3, p. 33.

Descr. *Dictyosiphon mesogloia*, Aresch., l.c.

Ersicc. „ „ Aresch., Alg. Scand. Exsicc., no. 106 ;
Holmes, Alg. Brit. Rar., no. 6.

Hab. In shallow sandy pools between tide-marks. May—Sept. Rare.
By the side of the posts which mark the road between Fenham
Flats and Holy Island.

A rare and interesting species first noticed within our limits by Mr Holmes in the summer of 1884. The fronds are much thicker than those of any other British species of *Dictyosiphon*, and as Mr Holmes has remarked the plant when seen growing might be mistaken for *Castagnea virescens*, from which it is only distinguishable by the acute apices of the ramuli.

The somewhat clumsy fronds, which are hollow below, are very irregularly branched, the branches given off at wide angles and furnished with short ramuli with acute apices. The whole plant is very lubricous, but not gelatinous as is the case with *Castagnea* and *Mesogloia*.

STICTYOSIPHON, Ktze. (1843).

Phlæospora, Aresch (1873) sec. Rke.

STICTYOSIPHON TORTILIS (Rupr.) Rke.

Algenflora der weslichen Ostsee, p. 54.—*Scytosiphon tortilis*,
Rupr., Alg. Och., p. 373.

Descr. *Phlæospora tortilis*, Aresch, Bot. Not. 1876, p. 34.

Fig. „ „ Kjellm., Spetsb. Thall. II., t. I., fig. 21.

Ersicc. „ „ Aresch, Alg. Scand. exs., no. 413 ; Holmes,
Alg. Brit. Rar., no. 20.

Hab. In shallow sandy pools between tide-marks, usually about half-tide level. All the year. Not uncommon. Berwick Bay. Sharper Head. Burnmouth.

In the present genus "the unilocular sporangia are formed directly from the cortical cells and cover the surface in dense patches, at maturity projecting above the surface of the frond, whereas in the genus *Dictyosiphon* they are scattered and immersed. In *Dictyosiphon*, moreover, the growth is from an apical cell, but in *Stictyosiphon* it is trichothallic, and in the former genus the superficial cells are polygonal and irregularly placed, while in the latter they are quadrate and arranged in regular series.*

Stictyosiphon tortilis is a rather coarse, dark-coloured species growing in large, entangled tufts. The filaments are much curled and twisted, very irregularly branched, and not unfrequently matted together into rope-like bundles. The plant is very brittle when dry, and does not in the least adhere to paper.

STICTYOSIPHON SUB-ARTICULATUS (Aresch.) Hauck.

Meeresalg., p. 375.—*Phlæospora sub-articulata*, Aresch., Bot. Not. 1873, p. 132.

Descr. *Phlæospora sub-articulata*, Aresch., l.c.

Fig. " " Aresch., Obs. Phyc. 3, p. 25, t. 3, p. 2-5.

Exsicc. " " Holmes, Alg. Brit. Rar., no. 19.

Syn. *Dictyosiphon fœniculaceus*, var. B., Aresch., Phyc. Scand. Mar., p. 148, t. 5f.

Stictyosiphon sub-articulatus, Rke., Algenflora der westlichen Ostsee, p. 55.

Hab. In shallow sandy pools between tide-marks. Jan.—Nov. Rare. Berwick Bay, Sharper Head.

The transverse lines seen on the fronds under a good lens distinguish this species at sight from *Dictyosiphon fœniculaceus*, which it otherwise closely resembles. The habit of the plant, however, is stiffer and the branches and ramuli more appressed. Like *Stictyosiphon tortilis* it does not adhere to paper, and is very brittle and easily broken when dry.

* Farlow, Mar. Alg. New Eng., p. 66.

FAMILY—**Ectocarpaceæ.**

MYRIOTRICHIA, HARV.

MYRIOTRICHIA CLAVÆFORMIS, *Harv.*

in *Hook.*, Journ. Bot., vol. I., p. 300, t. 138.

F. TYPICA.

Descr. Myriotrichia clavæformis, *Harv.*, l.c.

Fig. " " *Harv.*, Phyc. Brit., pl. 101.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 131.

Syn. " " *J. Ag.*, Spec. Alg. I., p. 13; *Ktz.*, Spec.

Alg., p. 470.

Myriotrichia Harveyana, *Næg.*, (partim.)

F. FILIFORMIS.

Descr. Myriotrichia filiformis, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 156.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 213; *Le Jol.*, Alg. Mar. Cherb., nos. 153 et 214; *Rabenh.*, Alg. Eur., no. 1517; *Crouan*, Alg. Finist., no. 12.

Syn. Myriotrichia filiformis, *J. Ag.*, Spec. Alg. I., p. 14; *Ktz.*, Spec. Alg. p. 470; *Le Jol.*, Liste, p. 74.

Myriotrichia Harveyana, *Næg.*, (partim.)

Hab. On various Algæ especially *Scytosiphon lomentarius*. May—Sept. Not uncommon. Berwick Bay, Sharper Head, Burnmouth, Holy Island.

Nægeli has shown in "Die neuern Algensysteme" that the two species of *Phycologia Britannica* are merely forms of a single species. The variety *filiformis* is rather more abundant than the typical form, but both varieties are frequently found growing together on the same host plant.

STREBLONEMA, DERB. AND SOL.

STREBLONEMA FASCICULATUM, *Thur.*

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 73.

Descr. Streblonema fasciculatum, *Hauck*, Meeresalg., pp. 323, 324.

Exsicc. " " *Le Jol.*, Alg. Mar. Cherb., no. 100.

Fig. " " *Hauck*, Meeresalg., fig. 133.

Syn. Streblonema volubilis, *Pringsh.*, (non *Thur.*) Beitr. z. Morph. d. Meeresalg., p. 13, t. 3, fig. B.

Hab. Parasitic in the fronds of *Castagnea virescens*. June and July. Rare. Berwick Bay.

A small and rare plant forming dark-coloured spots on the fronds of *Castagnea virescens*. It grows in the cortical portion of the host plant, and unless carefully looked for would pass unnoticed. The primary branches, composed of irregularly shaped cells, are procumbent, the secondary and fertile branches erect, the plurilocular sporangia clustered, and more or less branched, the whole plant sunk in the tissue of the host plant.

ECTOCARPUS, LYNGB.

ECTOCARPUS VELUTINUS (Grev.) Ktz.

Spec. Alg., p. 458.—*Sphacelaria* (?) *velutina*, Grev., Crypt. Fl. t. 350.

Descr. *Elachista velutina*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 28b.

Essicc. „ „ Crouan, Alg. Mar. Finist., no. 4. Hohen., Alg. Mar. Sicc., no. 209.

Streblonema velutinum, Le Jol., Alg. Mar. Cherb., no. 238.

Syn. *Ectocarpus velutinus*, Ktz., Tab. Phyc., v.t. 74; Hauck, Meeresalg., p. 326.

Elachista velutina, Aresch., Png., I., p. 236, t. VIII.; J. Ag., Spec. Alg. I., p. 10.

Streblonema velutinum, Thur. in Le Jol., Liste Alg. Mar. Cherb., p. 73.

Herponema velutina, J. Ag., Till. Alg. Syst. iv., p. 56.

Hab. On the thongs of *Himanthalia lorea*. June—Oct. Not uncommon. Berwick Bay, Greenses, Sharper Head, Burnmouth, Holy Island.

ECTOCARPUS TERMINALIS, Ktz.

Phyc. Germ., p. 236.

Descr. *Ectocarpus terminalis*, Hauck, Meeresalg., p. 325.

Fig. „ „ Ktz., Tab. Phyc. v., t. 74; Kjellm., Skand. Ectoch. och Tilopt., p. 54, pl. 2, fig. 7.

Essicc. „ „ Holmes, Alg. Brit. Rar., no. 36.

Syn. *Ectocarpus minimus*, Negl., in Herb. (Fide Bornet.)

Hab. On *Cladophora rupestris*, *Ceramium rubrum*, and other small Algæ in pools between tide-marks. June—Oct. Rare. Greenses, Rocks north of Sharper Head.

A small species forming a fringe on the fronds of *Cladophora* and other small Algæ. The filaments are scarcely an eighth of an inch long, and simple or furnished with a very few short branches given off at wide angles. The plurilocular sporangia are

irregularly oval or oblong and borne at the apices of the branches.

The species was first noticed in England in 1845 by Nægeli, who named it *Ectocarpus minimus* in his Herbarium, but I believe that the name has never been published. I am indebted to Dr. Bornet for these particulars, as well as for the identification of the species.

ECTOCARPUS HOLMESII, Batters.

Linn. Journ. Bot., vol. xxiv., p. 454, pl. 18,* fig. 7-16.

Descr. et Fig. *Ectocarpus Holmesii*, Batters, l.c.

Esicce. " " *Holmes*, Alg. Brit. Rar., no. 82.

Syn. *Ectocarpus crinitus*, Batters, (non Carm.) Berwk. Nat. Club Proc., vol. x., p. 537; Traill, Monogr. Alg. Firth Forth, p. 10.

Hab. On rocks in the shade near high-water mark.† Jan.—June.

Rare. Berwick Bay, Sharper Head, Scremerston.

An interesting species, first observed at Minehead, more than twenty years ago, by Miss I. Gifford—a lady whose little book on British Marine Algæ has done much to popularise the study of Algology in this country. The late Dr. Walk. Arnott, to whom specimens were submitted for identification, believed the plant was identical with Carmichael's *Ectocarpus crinitus*, and for many years it passed under that name, but as I have shown elsewhere it does not agree with authentic specimens of that species or with Harvey's description in *Phycologia Britannica*.

In the disposition of its fruits the plant recalls *Ectocarpus irregularis* or *Ectocarpus pusillus*, species which have very much coarser filaments and are usually epiphytic.‡

Although it occurs at distant stations along the coast, such as Minehead and Torquay in the South, and Berwick in the North, *Ectocarpus Holmesii* does not appear to be a common or abundant species anywhere.

* The Linnean Society have kindly allowed this plate to be reprinted to illustrate the present paper. (It is now Plate VIII.)

† With us the plant usually grows on flat ledges in the shade of overhanging rocks, but at Minehead Miss Gifford finds it growing on stakes and other wood-work, and not on rocks or mud.

‡ I would here note that in the form of *Ectocarpus Holmesii*, which bears plurilocular sporangia, the filaments are slightly coarser (from '017—'02 mm. in diameter) than those of the plants bearing unilocular sporangia which vary from '014 to '019 mm. in diameter. I am indebted to Mr T. H. Buffham for the above measurements, as also for those of *Ralfsia spongiocarpa* and *Phyllitis filiformis*, and it was only through inadvertence that I forgot to acknowledge this in the original description of those species.

ECTOCARPUS TOMENTOSUS (Huds.) *Lyngb.*

Hydr. Dan., p. 132.—*Conferva tomentosa*, *Huds.*, Fl. Ang., p. 594.

Descr. Ectocarpus tomentosus, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 182.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 37; *Crouan*, Alg. Finist., no. 31.

Syn. " " *J. Ag.*, Spec. Alg. i., p. 23; *Ktz.*, Phyc. Gen., p. 290.

Spongonema tomentosa, *Ktz.*, Spec. Alg., p. 461; *Id.*, Tab. Phyc. v., t. 18A.

Hab. Epiphytic on Fuci, Laminariæ, *Himanthalia lorea*, and other Algæ. May—Aug. Rare. Berwick Bay, Sharper Head, near the Singing Cove.

ECTOCARPUS GRANULOSUS (Engl. Bot.) *Ag.*

Syst., p. 163.—*Conferva granulosa*, *E.B.*, t. 2351.

Descr. Ectocarpus granulatus, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 200.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 38; *Holmes*, Alg. Brit. Rar., no. 7; *Le Jol.*, Alg. Mar. Cherb., no. 27; *Crouan*, Alg. Finist., no. 20.

Syn. " " *J. G. Ag.*, Sp. Alg. i., p. 21; *Le Jol.* Liste, p. 77; *Crn.*, Fl. Fin., p. 163.

Hab. On rocks and Algæ between tide-marks. May—Oct. Rare. Berwick Bay, Burnmouth, Scremerston.

ECTOCARPUS CONFERVOIDES (Roth) *Le Jol.*

Liste Alg. Mar. Cherb., p. 75.—*Ceramium confervoides*, *Roth*, Cat. Bot. i., p. 151.

Descr. Ectocarpus siliculosus, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 162.

Exsicc. " " *Wyatt*, Alg. Danmon., no. 172; *Holmes*, Alg. Brit. Rar., no. 64; *Crouan*, Alg. Finist., no. 25; *Le Jol.*, Alg. Mar. Cherb., no. 51.

Syn. *Conferva siliculosa*, *Dillw.*, Brit. Conf., p. 69; Eng. Bot., t. 2319. *Ceramium siliculosum*, *Ag.*, Syn. p. 65. *Ectocarpus siliculosus*, *Lyngb.*, Hydr. Dan., p. 131.

Hab. On Algæ between tide-marks. Very common. May—Nov. Berwick Bay, Burnmouth, Scremerston, Holy Island, etc.

ECTOCARPUS INSIGNIS, *Crouan*,

Fl. Finist., p. 163.

Descr. Ectocarpus insignis, *Crn.*, l.c.

Fig. " " *Holmes*, in Journ. Bot., vol. 25, p. 161 t. 274.

Exsicc. " " *Crouan*, Alg. Mar. Finist., no. 14; *Holmes*, Alg. Brit. Rar., no. 34.

Ectocarpus cæspitulus, *Holmes*, Alg. Brit. Rar., no. 62 (non *J. Ag.*, Alg. Med. nec *Kjellm.*)

Hab. On Algæ and rocks between tide-marks. June—Sept. Rare. Sharper Head, Burnmouth.

A pretty species forming small pencilled tufts on Algæ, or more rarely on rocks, in sandy pools between tide-marks. The filaments are very slender, an inch to an inch and a half long, tufted, matted below owing to the interlacing of the branches, becoming free and divergent above, the branches numerous, distant, opposite or alternate, given off at wide angles, covered in the lower portion of the tuft with the numerous, oval, sessile sporangia, which give to this part of the specimen a darker colour than the rest of the plant. The articulations at the base of the filaments are from two to three times longer than broad, in the centre, only once or twice and above four or five times. The form of this species which grows on rocks differs slightly from epiphytic specimens, the filaments are not so much entangled below, are usually longer, and not so tufted in habit, and the sporangia are rather uniformly scattered over the entire specimen and not confined to the basal portion only.

ECTOCARPUS FASCICULATUS, *Harv.*

Phyc. Brit. pl. 273.

Deser. et Fig. *Ectocarpus fasciculatus*, *Harv.*, l.c.

Esicc. " " *Le Jol.*, Alg. Mar. Cherb., no. 88;

Crouan, Alg. Finist., no. 23.

Syn. " " *J. Ag.*, Spec. Alg. l., p. 22; *Ktz.*, Spec. Alg., p. 451.

Hab. On Laminariæ, Himanthaliæ, and other Algæ near low-water mark. Not uncommon. May—Oct. Berwick Bay, Burnmouth, Rocks north of Dodd's Well, Singing Coves.

ISTHMOPLEA, KJELLM.

ISTHMOPLEA SPHÆROPHORA (*Harv.*) *Kjellm.*

Algenv. Murm. Mer., p. 30.—*Ectocarpus sphærophorus*, *Harv.* in *Hook.*, Br. Fl. v. 2, p. 326.

Deser. *Ectocarpus sphærophorus*, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg. New Eng., p. 74.

Fig. " " *Harv.*, l.c. pl. 126.

Esicc. " " *Wyatt*, Alg. Danmon., no. 173; *Le Jol.*, Alg. Mar. Cherb., no. 166; *Crouan*, Alg. Finist., no. 16.

Syn. Capsicarpella sphærophora, *Kjellm.*, Skand. Ect. och Tilopt., p. 20, t. i., fig. 2; *Aresch.*, Alg. Scand. Exsicc., no. 414.

Ectocarpus sphærophorus, *J. Ag.*, Spec. Alg. i., p. 17; *Farlow*, Mar. Alg. New Eng., p. 74.

Hab. On *Ptilota elegans*, *Callithamnion polyspermum*, and other small Algæ between tide-marks. April—June. Very rare. Rocks north of the Coves, Burnmouth.

In the present genus the plurilocular sporangia are formed in the continuity of the branches, while the unilocular sporangia are only partially immersed in them. The genus thus forms a link between Ectocarpus and Pyloiella.

PYLAIELLA, BORY.

PYLAIELLA LITTORALIS (L.) *Kjellm.*

Skand. Ect. och Tilopt., p. 99.—*Conferva littoralis*, *L.*, Spec. Plant., p. 1165.

Descr. Ectocarpus littoralis, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg. New Eng., p. 73.

Fig. „ „ „ *Harv.* l.c. pl. 197; *Farlow*, Mar. Alg. New Eng., pl. vi., figs. 3 and 4.

Exsicc. „ „ „ *Wyatt*, Alg. Danmon., no. 129.

Ectocarpus firmus, *Le Jol.*, Alg. Mar. Cherb., no. 68; *Crouan*, Alg. Finist., no. 30.

Syn. Ectocarpus littoralis, *Lyngb.*, Hydr. Dan., p. 130; *J. Ag.*, Spec. Alg. i., p. 18; *Ktz.*, Spec. Alg., p. 458.

Ectocarpus siliculosus, *Chauv.*, Alg. Norm., no. 10 et 86 (var. ferrugineus.)

Ectocarpus Thuretii, *Le Jol.*, in Mém. Soc. Sc. Nat. Cherb. ii., p. 206. (planta sporangiis unilocularibus.)

Ectocarpus firmus, *J. Ag.*, Spec. Alg. i., p. 23; *Le Jol.*, Liste, p. 78.

Ectocarpus siliculosus, var. firmus. *Ag.*, Spec.

FORMA COMPACTA, *Ag.*

Syn. Ectocarpus compactus, *Ag.*, Spec. Alg. ii., p. 41; *Le Jol.*, Alg. Mar. Cherb., no. 87.—*Ceramium compactum*, *Roth.*, Cat. Bot.

Hab. On Fuci and other Algæ, also on rocks, between tide-marks. All the year. Very common. *Forma compacta*, on rocks north of Dodd's Well, where fresh water runs into the sea. The typical form everywhere along the coast.

FAMILY—**Sphacelariaceæ.**

BATTERSIA, RKE. MSS.

BATTERSIA MIRABILIS, *Rke. Mscr.*

Fig. " " Tab. Nostr. IX., figs. 1-4.

Hab. On *Ralfsia*. Jan. and Feb. Rare. Berwick Bay, Scremerston.

A minute species forming small yellowish-brown patches on *Ralfsia*. To the naked eye it closely resembles the fructification of the host plant, and no doubt has often been passed over as such. The filaments are simple or furnished with a few short branches given off at wide angles, both primary fronds and branches usually ending in a sporangium. The fronds are monosiphonous, or very slightly polysiphonous below; they appear to grow down into the tissues of the host plant, and it is by no means an easy matter to distinguish between the cells of the *Ralfsia* and those of the parasite. The filaments are usually closely packed together forming a sort of microscopical turf over the surface of the *Ralfsia*. The growth is from an apical cell as in *Sphacelaria*, otherwise the plant closely resembles a *Streblonema* or an *Ectocarpus*.

SPHACELARIA, LYNGB.

SPHACELARIA CÆSPITULA, *Lyngb.*

Hydr. Dan., p. 105.

Descr. *Sphacelaria cæspitula*, *Lyngb.*, l.c.

Fig. " " *Lyngb.*, l.c. t. 324; Tab. nostra IX., fig. 5-8.

Exsicc. " " *Holmes*, Alg. Brit. Rar., no. 48.

Syn. " " *Ag.*, Spec. Alg.; *J. Ag.*, Spec.

Hab. Epiphytic on the stems of *Laminaria hyperborea* (*L. Cloustoni* Le Jol.) Jan.—Oct. Fruit Jan. and Feb. Rare. Berwick Bay. Near the Coves.

To this species I have referred, with considerable doubt, a rare *Sphacelaria* which grows on the roots of *Laminaria hyperborea*. The tufts are small and scattered, the filaments very short, usually from the sixteenth to the eighth of an inch high, either simple or furnished near the apices with one or two short simple branches. The plurilocular sporangia are large and oval, secund on the inner sides of the filaments and very numerous. They are borne on short pedicels composed of three cells, not of a single cell as is usually the case in *Sphacelaria cirrhosa*. The articulations are slightly broader than long.

SPHACELARIA RADICANS (Dillw.) Harv.

in *Hook.*, Br. Fl. II., p. 324.—*Conferva radicans*, *Dillw.*,
Suppl. p. 57, t. C.

F. TYPICA.

Conferva radicans, *Dillw.*, l.c.; E.B. t. 2138.

Filaments erect, tufted or loosely cæspitose (never felted) rhizoidal filaments few, branches scattered, irregularly placed, appressed. More than two rows of longitudinal cells in the width of a filament.

Fig. *Sphacelaria radicans*, *Harv.*, Phyc. Brit. pl. 189.

„ *olivacea* v. *radicans*, *Pringsheim*, *Sphacel.*, pls. 9, 10.

Essicc. „ „ *radicans*, *Wyatt*, *Alg. Danm.*, no. 210; *Holmes*,
Alg. Brit. Rar., no. 96.

Hab. In shallow, exposed, sandy pools between tide-marks. Common.
All the year. Berwick Bay. Burnmouth. Holy Island, and
elsewhere along the coast.

F. OLIVACEA (*Dillw.*)

Conferva olivacea, *Dillw.*, Suppl., p. 57, t. C.

Filaments, decumbent, felted below owing to the interlacing of the branches, forming indefinitely expanded turfs, rhizoidal filaments numerous, branches irregularly placed, given off at wide angles, primary and secondary branches nearly similar. Usually only two rows of longitudinal cells in the width of a filament.

Essicc. *Sphacelaria radicans*, f. *olivacea*, *Holmes*, *Alg. Brit. Rar.*, no.
96 (bis.)

Fig. *Conferva olivacea*, *Dillw.*, l.c.

Sphacelaria olivacea, *Traill*, *Trans. Bot. Soc. Edin.*, vol. XVII.,
Pl. II.; E.B. t. 2172.

Hab. On the walls of caves, and in the shade of overhanging
rocks near high-water mark. Not uncommon. Fruit Dec.—
March. Sharper Head, Coves, Holy Island, Burnmouth, etc.

A common species on our coast, which, though offering two marked forms, cannot, as it seems to me, be specifically divided. What I have called *forma typica* is, I believe, the plant described by Dillwyn under the name *Conferva radicans* and consequently entitled to be considered the type of the species, the form of the same species subsequently described by him under the name *Conferva olivacea* being regarded as a variety of it.

The typical form grows in exposed sandy pools between tide-marks, many plants growing side by side and forming indefinite

patches, usually more than half buried in the sand, only the tips of the filaments being visible. When detached from the rock the patches separate into small tufts or single threads, and it is then seen that the different plants are held together almost entirely by the sand amongst which they grow.

The globose sessile bodies figured by Harvey and Traill on *Sphacelaria radicans*, are not of the same nature as the pedicellate sporangia of the other *Sphacelariæ*. The Zoospores are formed quite differently according to Pringsheim.*

The variety *olivacea*, although it is occasionally met with in shady places between tide-marks, usually grows in caves. The filaments are densely matted together below, and form an indefinitely extended turf, often many yards in extent, which can be cut from its attachment in felted pieces. The sporangia are oval or globose, and borne on short pedicels composed of from one to three cells. I have seen no plurilocular sporangia.

SPHACELARIA RACEMOSA, Grev.

Scot. Crypt. Fl. vol. II., t. 96.

Descr. *Sphacelaria racemosa*, Grev., l.c. et Harv., Phyc. Brit.

Fig. " " Grev., l.c. Harv., l.c. pl. 349.

Exsicc. " " Holmes, Alg. Brit. Rar., no. 95.

Syn. " " J. G. Ag., Spec. Alg. I., p. 31; Ktz., Spec.

Alg., p. 466.

A rare and interesting species which had not been found in fruit since 1821, when in January 1887 I was so fortunate as to find it in good fructification. "This species has, I believe, been only once or twice previously found in fruit—first by Sir John Richardson, near Granton, in 1821; and next by the late Mr Hennedy, in the Clyde, according to Harvey, many years subsequently." †

The plants usually grow in small pencilled tufts on the bottom and sides of rock pools between tide-marks, but sometimes many plants grow side by side and get buried in the sand which binds them together into cushion-like patches, which, however, fall to pieces when detached from the rock, and the tufted mode of growth is then quite apparent. So far as I have observed, the plants have not the least tendency to become bound together by

* Pringsheim, *Sphacelarien Reihe*, p. 172.

† Holmes, in *Trans. Bot. Soc. Edin.*, vol. xvii., p. 80. In a note Mr Holmes continues: "I have seen Hennedy's specimens, but could find no fruit on them, and doubt if they belong to *Sphacelaria racemosa*. I should refer them to *Sphacelaria radicans*, Harv."

the rhizoidal filaments, which, although present, are not numerous.

The filaments are sparingly branched, the branches scattered, irregularly placed, somewhat appressed, the joints about as long as broad, in these respects resembling *Sphacelaria radicans*, and although *Sphacelaria racemosa* is taller and decidedly more tufted, barren specimens of the two species could hardly be distinguished. The singular grape-like fructification, however, at once marks the species; the sporangia are oval or spherical, and are arranged in a racemose manner on special branches crowded together into almost globular clusters, which are visible to the naked eye. The racemes arise from almost any part of the filaments, and are usually very numerous.

SPHACELARIA TRIBULOIDES, *Menegh.*

Lett. Corin., p. 2, n. 1.

Descr. *Sphacelaria tribuloides*, *J. Ag.*, Spec. Alg. i., p. 31.

Fig. " " *Ktz.*, Tab. Phyc. v. t. 89; *Zan.*, Icon. Phyc. Adr. III., p. 43, tav. 40B.

Syn. *Sphacelaria tribuloides*, *Ktz.*, Spec. Alg., p. 464; *Hauck*, Meeresalg., p. 343.

Sphacelaria rigida, *Hering*, *Ktz.*, Spec. Alg., p. 465; *Id.*, Tab. Phyc. v. t. 90.

Hab. In rock pools between tide-marks. June—Oct. Very rare. Sharper Head.

A small plant, forming erect tufts about an inch high. In colour, manner of branching, and habit, it closely resembles the two preceding species, but differs from both of them in the length of the articulations, which are from once and a half to twice as long as broad. When present, the curious three cornered propagula also serve to mark the species.

SPHACELARIA CIRRHOSA (Roth) *Ag.*

Syst. Alg., p. 164.—*Conferva cirrhosa*, *Roth*, Cat. Bot. II., p. 214; vol. III., p. 294.

Descr. *Sphacelaria cirrhosa*, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg., p. 76.

Fig. " " *Harv.*, l.c. pl. 178.

Easicc. " " *Wyatt*, Alg. Danm., no. 171; *Crouan*, Alg. Finist., no. 33; *Le Jol.*, Alg. Mar. Cherb., no. 39.

Syn. *Sphacelaria pennata*, *Lyngb.*, Hydr. Dan., p. 105, t. 31 (excl. var. B.)

Conferva cirrhosa, *Hook.*, Fl. Scot., part 2, p. 86.

Conferva pennata, *Huds.*, p. 604; *E. B.* t. 2330; *Fl. Dan.*, t. 1486, fig. 2.

Sphacelaria cirrhosa, *J. Ag.*, Spec. Alg. i., p. 34; *Ktz.*, Spec. Alg., p. 464.

Hab. Epiphytic on *Halidrys siliquosa*, *Cladophora rupestris*, and various other Algæ between tide-marks. All the year. Fruit June and July. Common. Berwick Bay, Burnmouth, Spittal, Holy Island, and elsewhere along the coast.

A common species forming dense tufts, from half an inch to two inches long, on Fuci and other Algæ. The branches are given off at wide angles, and are sometimes regularly opposite, sometimes irregularly placed; the shortly pedicellate sporangia are borne on the lateral branches. The propagula, which vary very much in size and shape, are much more common with us than the sporangia, which are rarely found on Berwick specimens. "Apart from their different habits and place of growth, it is difficult to assign exact marks by which to distinguish in all cases *S. cirrhosa* and *S. radicans*. In the latter the secondary branches are few and appressed, irregularly placed, never opposite, while in the former they are numerous, given off at wide angles, and frequently opposite." *

SUBGENUS—PSEUDUCHÆTOPTERIS, NOB.

Sporangia pedicellata in marginibus pinnarum regulariter disposita, cetera ut in *Chætopteride*.

SPHACELARIA PLUMIGERA, *Holmes*.

Grevillea, vol. xi., p. 145.

Exsicc. *Sphacelaria plumigera*, *Holmes*, Alg. Brit. Rar., no. 23.

Fig. " " Tab. Nostra x., fig. 1, 2, 3.

Hab. In shallow sandy pools between tide-marks, usually near low-water mark. All the year. Fruit Dec.—May. Rare. Sharper Head, Scremerston.

This species is usually found in British Herbaria bearing the name *Sphacelaria plumosa*, but as *Holmes* has shown it is not identical with the plant described by *Lyngbye* under that name. The globose shortly pedicellate unilocular sporangia are borne on the plumose secondary branches, not as in *Lyngbye's* plant (*Chætopteris plumosa*) on short special branches arising from the false cortex of the main axis.

* *Farlow*, Mar. Alg. New Eng., p. 77.

CHÆTOPTERIS Ktz.

Frons filiformis, ramosa, Rami, distiche pinnati, Pinnæ oppositæ, Axis primarius, filis radicalibus dense implexis, corticatus. *Sporangia in ramulis fructiferis simplicibus, e strato corticali axis primarii ortis, disposita.*

As I understand the genus *Chætopteris*, it differs from *Sphacelaria* in fructification,* since the sporangia are borne on short special branches arising from the cortical layer of the main axis, and not on the ultimate ramuli, and from *Cladostephus* by the opposite, not whorled branches, and also in stem structure.†

CHÆTOPTERIS PLUMOSA (Lyngb.) Ktz.

Phyc. Gen., p. 293.—*Sphacelaria plumosa*, Lyngb., Hydr. Dan., p. 103, t. 30, fig. c.

Fig. *Chætopteris plumosa*, Ktz., Tab. Phyc. VI., t. 6, fig. 1; *Areschoug*, Obs. Phyc., part III., pl. 2, figs. 4 and 5; Tab. Nost. x., fig. 4-6.

Exsicc. *Cladostephus plumosus*, Holmes, Alg. Brit. Rar., no. 1.

Syn. *Cladostephus distichus*, Holmes, MSS. (*Traill* in Algæ of Firth of Forth, Proc. Royal Phys. Soc. Edinb. 1882.)

Cladostephus plumosus, Holmes, in *Grevillea* XI., p. 146.

Hab. In deep water beyond tide-marks occasionally washed ashore. All the year, Fruit Winter. Very rare. Berwick Bay, Sharper Head.

A rare and beautiful species, closely resembling *Sphacelaria plumigera* in habit and general appearance. The fronds are slender, two to four inches or more in length, irregularly branched; the base of the stem, as well as the branches being naked for a short distance. The opposite pinnæ are long and closely set, usually arising from every joint, or when, as occasionally happens, they are again plumose in their upper half from every other joint. The sporangia are borne on short

* Not in the cortication of the main branches, for in *Sphacelaria plumigera* the rhizoidal filaments form a false cortex to the main axis.

† The stem structure of *Chætopteris plumosa* differs very little from that of *Sphacelaria plumigera*, and is not identical with that of *Cladostephus*, (vide plate x., figs. 2-7.)

Mr Holmes was the first to point out that this species agreed with *Cladostephus* in having fruit on minute special branches on the main axis; but, having only very imperfectly prepared sections of the stem at his disposal, he was misled into thinking that the stem structure also was the same as in that genus. Since seeing my more perfect sections, he quite agrees with me that the genus *Chætopteris* must be retained.

special branches arising from the cortical layer of the main axis, as is the case in the genus *Cladostephus*. Both kinds of fruit are shortly pedicellate, and mostly secund on the upper side of the fruit-bearing branches, the unilocular sporangia are globose, the plurilocular sporangia oblong ovate. The fruit-bearing branches are usually very numerous, and form a sort of plush around the denuded portions of the main stems, just below the point where the pinnæ commence.

The pinnæ are longer and not so closely set as those of *Sphacelaria plumigera*, and the branches are not so much fascicled above. *Sphacelaria plumigera*, moreover, nearly always grows between tide-marks, while *Chaetopteris plumosa* is an inhabitant of the deep water beyond the influence of the tides.

CLADOSTEPHUS, Ag.

CLADOSTEPHUS SPONGIOSUS (Lightf.) Ag.

Syst., p. 168.—*Conferva spongiosa*, Lightf., Fl. Scot., p. 983.

Descr. *Cladostephus spongiosus*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 138.

Exsicc. „ „ Wyatt, Alg. Danm., no. 169; Le Jol., Alg. Mar. Cherb., no. 146; Crouan, Alg. Finist., no. 43.

Syn. *Cladostephus spongiosus*, J. G. Ag., Spec. Alg. I., p. 43; Ktze., Spec. Alg., p. 469; Johnst., Fl. Berwk. II., p. 245.

Cladostephus verticillatus, var. *spongiosus*, Farlow, Mar. Alg. New Eng., p. 78.

Conferva spongiosa, Dillw., Syn., p. 76, t. 42; Eng. Bot. t. 2427.

Cladostephus laxus, Fl. Dan., t. 1955 (?) excl. Syn.

Hab. On sand-covered rocks from half-tide level to low-water mark. All the year. Fruit Jan. and Feb.. Common. Berwick Bay, Burnmouth, Holy Island, and elsewhere along the coast.

CLADOSTEPHUS VERTICILLATUS (Lightf.) Ag.

Syn. Int., p. xxv.—*Conferva verticillata*, Lightf., Fl. Scot., p. 984 (1777).

Descr. *Cladostephus verticillatus*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 33.

Exsicc. „ „ Wyatt, Alg. Danm., no. 82; Le Jol., Alg. Mar. Cherb., no. 48; Crouan, Alg. Finist., no. 44.

- Syn.* Cladostephus verticillatus, *J. Ag.*, Spec. Alg. i., p. 43; *Le Jol.*, Liste, p. 81; *Pringsheim*, Sphacelarien Reihe, pl. i., et seq.
 Cladostephus myriophyllum, *Ag.*, Syst., p. 169; *Ktz.*, Spec. Alg., p. 468.
 Conferva myriophyllum, *Roth*, Cat. Bot. iii., p. 312, t. 12, fig. b. (1806).
Hab. On rocks and stones near low-water mark. Coves, Holy Island. Very rare.

FAMILY—**Ralfsiaceæ.**

RALFSIA, BERK.

SUBGENUS—EURALFSIA.

RALFSIA VERRUCOSA, *Aresch.*

Linn. (1843) p. 264.

- Descr.* Ralfsia verrucosa, *Furrow*, Mar. Alg. New Eng., p. 87.
Fig. „ „ *Farlow*, l.c. pl. v. fig. 5; *Rke.*, Atlas Deutsch. Meeresalg. t. vi.; Tab. Nostr. x., fig. 8.
Essicc. „ „ *Le Jol.*, Alg. Mar. Cherb., no. 37.
Syn. „ „ *J. Ag.*, Spec. Alg. i., p. 62.
 Ralfsia deusta, *Berk.*, in Eng. Bot. Suppl. t. 2866; *Harv.*, Phyc. Brit. pl. 98; *Ktz.*, Spec. Alg., p. 544 (partim); (non Ralfsia deusta *J. Ag.*)
 Zonaria (?) deusta, *Ag.*, Syn., p. 40; *Johnston*, Fl. Berwk. ii., p. 248.
Hab. On rocks in pools from high-water mark to half-tide level. All the year. Fruit Dec.—March. Common. Berwick Bay, Holy Island, Scremerston, and elsewhere along the coast.

This curious plant, which, to the naked eye, has more the appearance of a crustaceous lichen than an Algæ, forms coriaceous expansions, often of considerable size, on rocks near high-water mark.

The unilocular sporangia are produced in abundance during the winter months, they are obovate ·035—·040 mm. long by ·018 or ·019 m.m. broad, and are accompanied by clavate paraphyses. The plurilocular sporangia on the other hand are very rarely met with, and are not accompanied by paraphyses. They are formed from the vertical filaments of the thallus, and are composed of many cells, sometimes longitudinally divided into two parts, ·007 or ·008 mm. broad, ranged in filaments which are closely packed together so as to form indefinite sori on the surface of the fronds (vide Plate x., fig. 8).

Plants which bear plurilocular sporangia differ slightly from those with unilocular fruit.

In specimens with plurilocular sporangia the surface of the frond is smooth, blackish-green, waved, sometimes tubercular or bullate in the centre. These plants retain their orbicular form for a long time, and fronds six or even eight inches in diameter still orbicular in outline are sometimes to be met with. In the plants which bear the unilocular sporangia, on the other hand, the surface of the fronds is very rough, reddish-brown, and always more or less bullate. The older fronds are, moreover, very irregular in outline.

Dr. Johnston* sent specimens of this species, from Berwick, to Dr. Greville, who wrote concerning them, "*Zonaria deusta* † has a reddish colour which your plant has not, and a corrugated burnt appearance, which yours has in a much less degree. I think that your plant may turn out to be my *Padina parvula* (*Zonaria parvula*, Crypt. Fl. t. 360) in a mature state." I suspect that Johnston's specimens belonged to the form bearing plurilocular sporangia.

SUBGENUS—STRAGULARIA, STRÖMFELT.

The species belonging to this subgenus resemble *Myrionemata* in fructification, and *Lithodermata* in structure. The fronds are composed of a single horizontal layer, from which arise short vertical filaments, loosely united to one another and easily separable under pressure, not firmly united so as to form a solid parenchymatous structure as in *Ralfsia* proper. The paraphyses and spores arise from the apical cells of the vertical filaments of the thallus and form indefinitely extended sori, rather uniformly diffused over the frond, and lighter coloured than the barren portions of it. In fact, as Dr. Farlow remarks, ‡ these plants may be said to be *Ralfsia* with diffuse fructification and slightly developed fronds, or *Myrionemata* with excessively developed basal portions.

Strömfelt, unwilling to unite the families *Myrionemata* and *Lithodermata*, makes *Stragularia* the type of a new family *Stragulariaceæ*.

* Flora of Berwick, vol. II., p. 248.

† *Ralfsia verrucosa*, Aresh., (non *Ralfsia deusta* J. Ag.)

‡ Marine Algae of New England, p. 88.

RALFSIA CLAVATA (Carm.) Crouan.

Florule du Finist., p. 166.—*Linckia clavata*, Carm., Alg. App. ined cum ic.

Descr. *Ralfsia clavata*, Farlow, Mar. Alg. New Eng., p. 88.

Fig. *Stragularia adhærens*, Strömfelt, Algveg. Islands Kuster. pl. II., fig. 13, 14, 15.

Exsicc. *Ralfsia clavata*, Crouan, Alg. Mar. Finist. 56 (pro parte.)*
Holmes, Alg. Brit. Rar., no. 90.

Syn. *Myrionema clavatum*, Harv. in Hook., Br. Fl. vol. II., p. 391;
Harv., Phyc. Brit. pl. 348; J. G. Ag., Spec. Alg. I., p. 50.

Myrionema Henschii, Casp., Seealgen v. Neukuhren Schriften d.
Phys. ökon Ges. zu Königsberg XII., 1871, p. 142 (Fide Hauck);
Hauck, Meeresalgen von Deutschland, p. 322 (ex ipso Hauck.)

Stragularia adhærens, Strömfelt. Meeresalg Isl., p. 173; *Id.* Om
Algvegetationen vid Islands Kuster., p. 49, t. II., fig. 13-15 (ex
ipso Strömfelt).

Hab. On rocks and stones from half-tide level to low-water mark.
Fruit Jan.—March. Rare. Berwick Bay, Sharper Head,
Scremerston.

A small species forming closely adherent crusts on rocks and stones between tide-marks. The fronds are at first orbicular, but soon become indefinite in outline, and as is the case with *Ralfsia verrucosa* and *Ralfsia spongiocarpa* the central part often dies away, in winter, leaving the circumference in the form of a circular band. The unilocular sporangia are large, pyriform in shape, and usually only partially filled by the sporal mass, the upper portion being empty.

The club-shaped paraphyses are composed of from 6 to 7 cells much longer than broad below, about equal in length and breadth above; either a single paraphysis, or two together, or a paraphysis and a sporangium arising from a single cell of the vertical filaments which compose the thallus.

Captain Carmichael's description and figure of his *Linckia clavata* are very inadequate, and as none of his original specimens are known to exist, there must always remain a certain amount of doubt as to whether his plant was identical with the present species.

* In Mr Holmes's copy of Crouan's *Algues Marines du Finistere*, no. 56, is, in my opinion, a stunted specimen of *Ralfsia verrucosa*, and Dr. Hauck tells me this is also the case in his copy. Dr. Bornet, however, in a letter to me concerning my Berwick plant, says:—"C'est bien ce que je connais sous le nom de *Myrionema clavatum*, Carmichael (*Ralfsia clavata*, Crouan, pro parte)."

RALFSIA SPONGIOCARPA, *Batters.*

Journ. Linn. Soc. Bot., vol. xxiv., p. 457, pl. 18,* fig. 17-21.

Exsicc. *Ralfsia spongiocarpa*, *Holmes*, Alg. Brit. Rar., no. 91.

Hab. On the rocky bottoms of shallow pools half filled with sand, near low-water mark. Fruit Jan. and Feb. Rare. Berwick Bay.

Smaller and thinner, and retaining its orbicular form for a longer time than *Ralfsia clavata*, which it closely resembles to the naked eye. The paraphyses, however, are cylindrical or slightly attenuated to the apices, never club-shaped. They are composed of from 10 to 12 cells, if anything rather broader than long below. The sporangia are smaller than those of *Ralfsia clavata*, and more oval in shape, sometimes even nearly globular, and although usually lateral at the base of the paraphyses, one not unfrequently finds them terminal as in the genus *Lithoderma*. The filaments composing the frond are occasionally more or less forked.

Altogether the plant reminds one of Wollny's description of his *Lithoderma maculiforme*,† which however is a true *Lithoderma* the unilocular sporangia being always terminal and not accompanied by paraphyses. It is also a much smaller plant than my *Ralfsia spongiocarpa* being little more than a mere speck.

I have found what appear to be plurilocular sporangia both in *Ralfsia clavata* and *Ralfsia spongiocarpa*. They form indefinite sori on the surface of the frond, and are composed of cells placed end on end so as to form filaments, the upper cells of which seem to contain zoospores. Except that they are a little less in diameter they much resemble the vertical filaments of the thallus, and I feel far from certain what their real function may be.

FAMILY—**Myrionemateæ.**MYRIONEMA, *Grev.*MYRIONEMA VULGARE, *Thur.*

in *Le Jol.*, Liste des Alg. Mar. Cherb., p. 82.

Descr. *Myrionema vulgare*, *Farlow*, Mar. Alg. New Eng., p. 79.

Fig. *Myrionema strangulans*, *Harv.*, Phyc. Brit., pl. 280.

Syn. *Myrionema strangulans*, *Grev.*, Crypt. Fl., t. 300; *J. G. Ag.*, Spec. Alg. i., p. 48; *Ktz.*, Spec. Alg., p. 540.

* The Linnean Society have kindly permitted this plate to be reprinted to illustrate the present paper (it is now plate VIII.)

† *Hedwigia*, vol. xx., p. 31, Pl. II., fig. 1-4.

Myrionema punctiforme, Harv., in Hook., Br. Fl., vol. II., p. 391 ;

Harv., Phyc. Brit., pl. 41, B ; J. Ag., Spec. Alg. I., p. 49.

Myrionema maculiforme, Ktz., Tab. Phyc. VII., t. 93, f. 2.

Hab. Epiphytic on various Algæ between tide-marks. Summer and Autumn. Fruit July and Aug. Common. Everywhere along the coast.

As Thuret has pointed out several of the species of *Myrionema* of Harvey and Kutzing are nothing more than modifications of one species. When growing on the filiform *Enteromorpha* the *Myrionema* surrounds the frond and constitutes the *Myrionema strangulans* of Greville, but when growing on flat surfaces, such as the fronds of *Ulva lactuca*, the same *Myrionema* forms small orbicular patches, and is then Kutzing's *Myrionema maculiforme*. Again when found on the filiform fronds of *Ceramia* it is reduced to tiny cushion-like patches which constitute the *Myrionema punctiforme* of Harvey.

FAMILY—**Chordariaceæ.**

TRIBE I.—**LEATHESIEÆ.**

ELACHISTA, DUBY.

ELACHISTA FUCICOLA, (Velley,) *Pries.*

Fl. Scan., p. 317.—*Conferva fucicola*, Velley, Mar. Plant., no. 4.

Descr. Elachista fucicola, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 240 ; Farlow, Mar. Alg. New Eng., pl. VII., fig. 3.

Exsicc. „ „ Crouan, Alg. Finist., no. 8 ; Le Jol., Alg. Mar. Cherb., no. 89.

Conferva fucicola, Wyatt, Alg. Danm., no. 192.

Syn. „ „ Ag., Syst., p. 103 ; Johnston, Fl. Berwk. II., p. 253.

Elachista fucicola, J. Ag., Spec. Alg. I., p. 12.

Phycophila fucorum, et Phycophila Agardhii, Ktz., Spec. Alg., p. 541 ; Ktz., Phyc. Gen., p. 330 ; Ktz., Tab. Phyc. VIII., t. 95, f. 2 ; et t. 96, f. 1.

Hab. Common on Fuci along the whole coast. Fruit July and Aug.

ELACHISTA FLACCIDA (Dillw.) *Aresch.*

Pug. 2, p. 262.—*Conferva flaccida*, Dillw., Conf., p. 53, t. C.

Descr. *Elachista flaccida*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 260.

Exsicc. „ „ Le Jol., Alg. Mar. Cherb., no. 7; Crouan, Alg. Finist., no. 7.

Conferva flaccida, Wyatt, Alg. Danm., no. 292.

Syn. „ „ Eng. Bot., t. 2310; Johnston, Fl. Berwk. II., p. 253.

Phycophila flaccida, Ktz., Phyc. Gen., p. 330; Ktz., Spec. Alg., p. 541.

Elachista flaccida, J. Ag., Spec. Alg. I., p. 11.

Hab. On *Halidrys siliquosa*. Fruit July—Sept. Rare. Berwick Bay. Holy Island.

ELACHISTA GREVILLEI, *Arn.*

in Harv., Nat. Hist. Review, IV., p. 202, pl. XII. B.

Descr. et Fig. *Elachista Grevillei*, Harv., l.c.

Exsicc. „ „ Holmes, Alg. Brit. Rar., no. 9.

Hab. Epiphytic on *Cladophora rupestris* between tide marks, often in places exposed to the drip of fresh-water. May—Sept. Fruit Aug. and Sept. Rare. Sharper Head, Singing Coves, Rocks north of Dodd's Well.

ELACHISTA SCUTULATA (Eng. Bot.) *Duby.*

Bot. Gall. II., p. 972.—*Conferva scutulata*, Eng. Bot. t. 2311.

Descr. *Elachista scutulata*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 323.

Exsicc. „ „ Crouan, Alg. Finist., no. 5.

Conferva scutulata, Wyatt, Alg. Danm., no. 223.

Syn. *Elachista scutulata*, J. Ag., Spec. Alg. I., p. 11; Ktz., Spec. Alg., p. 540.

Hab. On *Himanthalia lorea*. June—Oct. Not uncommon. Sharper Head, Berwick Bay, Holy Island, and elsewhere along the coast.

ELACHISTA ARESCHOUGHII, *Crouan.*

Liste des Alg. Mar.; Florule du Finistère, p. 160, pl. 24, gen. 157.

Descr. and Fig. *Elachista Areschougii*, Crouan, l.c.

Hab. On *Himanthalia lorea*. June to Oct. Fruit July and Aug. Rare. Berwick Bay, Sharper Head, Burnmouth, Scremerston.

A small and rare species forming minute hemispherical tufts, scarcely larger than a pin's head, on the thongs of *Himanthalia lorea*. From the ovoid, colourless, subdichotomous cells of the solid tubercle two sorts of filaments arise; the one coloured, distinctly incurved, attenuated to the base, obtuse at the apex, with joints twice as long as broad below, nearly square above; the other, colourless, straight, much longer than the coloured filaments, with articulations three or four times as long as broad. The clavate sporangia are attached at the base of the incurved coloured filaments.

LEATHESIA, GRAY.

LEATHESIA DIFFORMIS (Linn.) *Aresch.*

Alg. Scand. ser. nov. 214.—*Tremella difformis*, Linn., Syst. Nat., p. 714.

Descr. *Leathesia tuberiformis*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 324.

Easicc. " " Le Jol., Alg. Mar. Cherb., no. 56.

Corynephora marina, Wyatt, Alg. Danm., no. 149.

Leathesia marina, Crouan, Alg. Mar. Finist., no. 48.

Syn. " " *J. Ag.*, Spec. Alg. i., p. 52; *Ktz.*, Spec. Alg., p. 543.

Leathesia tuberiformis, Gray, in Phyc. Brit; *Thuret*, in Ann. des Sciences, Ser. 3, vol. xiv., Pl. 26, figs. 5-12.

Leathesia difformis, Farlow, Mar. Alg. New Eng., p. 82, Pl. v., fig. 1.

Chætophora marina, Grev., Crypt. Fl., p. 53; *Lyngb.* Hydr. Dan., p. 193, t. 66; *Johnston*, Fl. Berwk. II., p. 260.

Hab. Common on Algæ and sand-covered rocks from half-tide level to low-water mark. May—Oct. Berwick Bay, Burnmouth, Holy Island, and elsewhere along the coast.

TRIBE II.—EUCHORDARIEÆ.

CHORDARIA, AG.

CHORDARIA FLAGELLIFORMIS (Fl. Dan.) *Ag.*

Syn., p. 12.—*Fucus flagelliformis*, Fl. Dan., t. 650.

Descr. *Chordaria flagelliformis*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 111; Farlow, Mar. Alg. New

Eng., pl. v., fig. 2.

- Exsicc.* " " Wyatt, Alg. Danm., no. 57.
Syn. " " *J. Ag.*, Spec. Alg. I., p. 66; *Ktz.*, Spec.
 Alg., p. 546.

Gigartina flagelliformis, *Lamour.*, Ess., p. 48; *Duby*, Bot. Gall. II., p. 952; *Johnston*, Fl. Berwk. II., p. 234.

Hab. On rocks and stones near low-water mark. Common. May—Dec.
 Berwick Bay, Sharper Head, Scremerston, and elsewhere along the coast.

A variety in which the main stem is densely clothed with short pointed branches, occurs with us; it is probably Farlow's *var. densa*.

TRIBE III.—MESOGLÆÆ.

MESOGLÆA, Ag.

MESOGLÆA VERMICULARIS (Eng. Bot.) Ag.

Syn., p. 126.—*Rivularia vermiculata*, *Eng. Bot.*, t. 1818.

Descr. *Mesogloia vermicularis*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 31.

Exsicc. " " Wyatt, Alg. Danm., no. 100; *Crouan*,
 Alg. Finist., no. 54; *Le Jol.*, Alg. Mar. Cherb., no. 32.

Syn. *Mesogloia vermiculata*, *Le Jol.*, Liste, p. 87.

Mesogloia vermicularis, *J. Ag.*, Spec. Alg. I., p. 58.

 " " *var. B.*, *septentrionalis*, *Ktz.*, Spec. Alg.,
 p. 545.

Alcyonidium vermiculatum, *Lamour.*

Trichocladia vermicularis, *Harv.*, in *Mack.*, Fl. Hiber., part 3,
 p. 186.

Helminthocladia vermicularis, *Harv.*, Gen. S. Afr. Pl., p. 397; *Id.*,
 Man. 1st Ed., p. 45.

Chætophora vermiculata, *Hook.*, Fl. Scot., part 2, p. 75.

Hab. On rocks and stones near low-water mark and below. July and
 Aug. Very rare. Holy Island.

The thick, irregularly pinnate branches, and the clavate peripheral filaments distinguish this species from *Castagnea virescens*, the only British plant with which it is at all likely to be confounded.

CASTAGNEA (DERB. ET SOL.) THURET.

CASTAGNEA VIRESCENS (Carm.) Thur.

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 85.—*Mesogloia virescens*, *Carm.*, Alg. Appin. ined.; *Hook.*, Brit. Fl., vol. II., p. 387.

- Descr.* *Mesogloia virescens*, *Harv.*, Phyc. Brit.
Fig. " " *Harv.*, l.c. pl. 82; *Farlow*, Mar. Alg. New Eng., pl. 7, fig. 1.
Exsicc. " " *Wyatt*, Alg. Danm., no. 49; *Crouan*, Alg. Finist., no. 52.
Castagnea virescens, *Le Jol.*, Alg. Mar. Cherb., no. 103; *Aresch.*, Alg. Scand. Exsicc., no. 315.
Syn. *Mesogloia virescens*, *J. Ag.*, Spec. Alg. I., p. 56; *Ktzt.*, Spec. Alg., p. 545.
Eudesme virescens, *J. Ag.*, Alg. Syst. 2, p. 29; *Kjellman*, Alg. Arct. Sea; *Strömf.*, Alveg Island, Kust.
Hab. On sand-covered rocks and stones in puddles from half-tide level to low-water mark. Spring and Summer. Fruit June—Aug. Not uncommon. Berwick Bay, Sharper Head, Burnmouth.

FAMILY—**Asperococcaceæ.**

ASPEROCOCCUS, *Lamour.*

ASPEROCOCCUS ECHINATUS (Ag.) *Grev.*

Alg. Brit., p. 50, t. 9.—*Encelium echinatum*, *Ag.*, Syst., p. 261.

F. TYPICA.

- Descr.* *Asperococcus echinatus*, *Harv.*, Phyc. Brit.
Fig. " " *Harv.*, l.c. pl. 194; *Farlow*, Mar. Alg. New Eng., Pl. v., fig. 3.
Exsicc. " " *Le Jol.*, Alg. Mar. Cherb. no. 1; *Crouan*, Alg. Finist., no. 60.
Asperococcus fistulosus, *Wyatt*, Alg. Danm., no. 7.
Syn. " " *Hook.*, Br. Fl. II., p. 277; *Harv.*, in *Mack.*, Fl. Hib., part 3, p. 175.
Asperococcus rugosus, *Lamour.*, Ess., p. 62.
Scytosiphon filum var. *fistulosum*, *Ag.*, Spec. I., p. 163; *Ag.*, Syst., p. 258.
Conferva fistula, *Roth*, Cat. Bot. III., p. 169.
Encelium echinatum, *Ktzt.*, Phyc. Gen., p. 336; *Spreng.*, Syst. Veg. IV., p. 328.
Asperoeoccus echinatus; *J. Ag.*, Spec. Alg. I., p. 76; *Johnston*, Fl. Berwk. II., p. 248.
Fistularia attenuata, *Grev.*, Fl. Edin., p. 300.
Ulva fistulosa, *Hook.*, Fl. Scot. II., p. 92.
Hab. On Algæ in shallow pools between tide-marks, also on stones and shells. Common. April—Sept. Berwick Bay, Burnmouth, Scremerston, Holy Island, and elsewhere along the coast.

F. VERMICULARIS (Griff.) *Harv.*

Phyc. Brit., pl. 194, var. B.

Descr. *Asperococcus echinatus*, b. *vermicularis*, *Harv.*, l.c.; *J. Ag.*, Spec. Alg. i., p. 76.

Exsicc. „ „ *Le Jol.*, Alg. Mar. Cherb., no. 181.

Asperococcus vermicularis, *Wyatt*, Alg. Danm., no. 207.

Syn. *Encœlium echinatum* b. *setaceum*, *Ktz.*, Spec. Alg., p. 552.

Hab. On Algæ in shallow pools between tide-marks. Common. Berwick Bay, etc.

A smaller plant than the type with filiform setaceous twisted fronds. It is almost as common as, and is frequently found growing on the same host plant with, the typical form.

FAMILY—**Laminariaceæ.**

CHORDA, STACKH.

(Sea Whip-thongs; Sea-Laces; Deadmen's-Laces.)

CHORDA FILUM (Linn.) *Stackh.*

Ner. Brit., p. xvi.—*Fucus filum*, *Linn.*, Spec. Plant, p. 1126.

Descr. *Chorda filum*, *Harv.*, Phyc. Brit.; *Farlow*, Mar. Alg.

Fig. „ „ *Harv.*, l.c. pl. 107; *Farlow*, Mar. Alg. New Eng., Pl. vi., fig. 1.

Exsicc. „ „ *Wyatt*, Alg. Danm., no. 159; *Le Jol.*, Alg. Mar. Cherb., no. 45; *Aresch.*, Alg. Scand. Exs., no. 92.

Scytosiphon filum, *Crouan*, Alg. Finist., no. 79.

Syn. „ „ *C. Ag.*, Spec. Alg. i., p. 161; *Ag.*, Syst., p. 257; *Grev.*, Fl. Edin., p. 288; *J. G. Ag.*, Spec. Alg. i., p. 126.

Chordaria filum, *Ag.*, Syn., p. 13; *Hook.*, Fl. Scot., part 2, p. 98.

Chorda filum, *Ktz.*, Spec. Alg., p. 548; *Annales des Sciences*, Ser. 3, vol. xiv., Pl. 29, figs. 5-10; *Johnston*, Fl. Berwk. II., p. 247.

Fucus filum, *Lightf.*, Fl. Scot., p. 963; *Eng. Bot.*, t. 2487.

Hab. On rocks and stones in sandy pools near low-water mark. April—Dec. Common. Berwick Bay, Burnmouth, Holy Island, and elsewhere on the coast.

CHORDA TOMENTOSA, *Lyngb.*

Hydr. Dan., p. 74, t. 19.

Descr. *Chorda tomentosa*, *Lyngb.*, l.c.

Fig. „ „ *Crouan*, Flor. du Finist., pl. 29, gen. 186.

Exsicc. „ „ *Aresch.*, Alg. Scand. Exsicc. ser. nov., no. 93.

Scytosiphon tomentosum, *Crouan*, Alg. Mar. Finist., no. 79.

Hab. On rocks in the deep water beyond the influence of the tides.
Very rare. . A single specimen cast ashore near the Coves.

A rare species characterized by its elongated linear paraphyses, which are scarcely as long as the sporangia. The fronds are always more or less covered with coloured hairs.

ALARIA, GREV.

(Badderlocks, Hensware, Murlins.)

ALARIA ESCULENTA (Linn.) Grev.

Alg. Brit., p. 25, t. 4.—*Fucus esculentus*, *Linn.*, *Mant.*, p. 135.

Descr. *Alaria esculenta*, *Harv.*, *Phyc. Brit.*

Fig. „ „ *Harv.*, l.c. pl. 79.

Exsicc. „ „ *Wyatt*, *Alg. Danm.*, no. 203; *Crn.*, *Alg. Mar. Finist.*, no. 88.

Syn. „ „ *J. Ag.*, *Spec. Alg. I.*, p. 143; *Ktz.*, *Phyc. Gen.*, p. 347, t. 32, fig. 1.

Laminaria esculenta, *Lyngb.*, *Hydr. Dan.*, p. 23; *Ag.*, *Spec. Alg. I.*, p. 110; *Id.*, *Syst.*, p. 269; *Hook.*, *Fl. Scot.*, part 2, p. 98; *Grev.*, *Fl. Edin.*, p. 282; *Johnston*, *Fl. Ber. II.*, p. 224.

Fucus fimbriatus, *Gmel.*, *Hist. Fuc.*, p. 200, t. 29, fig. 1.

Fucus tetragonus, *Good. and Woodw.*, in *Linn. Trans. III.*, p. 140.

Fucus Scoticus latissimus edulis dulcis, *Raii.*, *Syn.*, p. 46, no. 30.

Hab. On exposed rocks near low-water mark, always submerged. All the year. Fruit Dec.—March. Common. Berwick Bay, Burnmouth, Holy Island.

SACCORHIZA, DE LA PYL.

(SEA FURBELOWS).

SACCORHIZA BULBOSA (Huds.) De la Pyl.

Fl. Terra-Neuve., p. 23.—*Fucus bulbosus*, *Huds.*, *Fl. Angl.*, p. 579.

Descr. *Laminaria bulbosa*, *Harv.*, *Phyc. Brit.*

Fig. „ „ *Harv.*, l.c., pl. 241.

Exsicc. „ „ *Wyatt*, *Alg. Danm.*, no. 4.

Haligenia bulbosa, *Le Jol.*, *Alg. Mar. Cherb.*, no. 211.

Saccorhiza bulbosa, *Crouan*, *Alg. Finist.*, no. 86.

Syn. „ „ *J. Ag.*, *Spec. Alg. I.*, p. 138.

Laminaria Belvisii, *Ag.*, *Spec. Alg. I.*, p. 115; *Ag.*, *Syst.*, p. 271.

Phycocastanum bulbosum, Ktz., Phyc. Gen., p. 346.

Haligenia bulbosa, Dcne., Ess., p. 50.

Laminaria bulbosa, Lamour., Ess., p. 22; Ag., Syn., p. 18; Hook., Fl. Scot., part 2, p. 99; Johnston, Fl. Berwk. II., p. 225.

Fucus polyschides, Lightft., Fl. Scot., p. 936.

Hab. On rocks in deep water. All the year. Fruit Sept.—Dec. Occasionally cast ashore at Holy Island, and near the Greenses Harbour.

LAMINARIA (LAMOUR.,) J. G. AG.

(OAR-WEEDS, DEVILS' APRONS.)

LAMINARIA HYPERBOREA (Gunn.) Foslie.

Ueber die Laminarien Norwegens, p. 42.—*Fucus hyperboreus*, Gunn., Fl. Norw. I., p. 34, tab. 3, et Herb. (fide Foslie) (1766.)

Descr. *Laminaria Cloustoni*, Le Jol., exam. p. 56.

Hafgygia „ *Areseh.*, Obs. Phyc. IV., p. 1.

Fig. *Laminaria hyperborea*, Foslie, l.c. tab. 1, fig. 1-8.

Laminaria digitata, Harv., Phyc. Brit., pl. 223.

Syn. *Fucus scoparius*, Ström., Sondm., p. 93.

„ *digitatus*, Mohr., Isl. Naturh. p. 342; Stackh., Ner. Brit., p. 5, t. 3.

Laminaria phycodendron, De la Pyl., Observ. p. 181.

„ *digitata*, Lyngb., Hydr. Dan., p. 20 (excl. var. et syn. plur.); J. G. Ag., Lamin., p. 24; Johnston, Fl. Berwk. II., p. 225.

Hafgygia digitata, Ktz., Phyc. Gen., p. 346, t. 30-31; Id., Spec. Alg., p. 575.

Laminaria Cloustoni, Edm., Fl. Shetl., p. 54 (1845); Le Jol., l.c. p. 56.

“Cuvy,” Cloust., in Anders. Guide, p. 721.

Hab. On rocks and stones at low-water mark and below. Common along the whole coast. All the year.

Foslie has shown that Gunner, not Edmonston as had previously been supposed, was the first to point out the specific differences between the present species and *Laminaria digitata* (*Laminaria flexicaulis*, Le Jol.) He found amongst the remains of Gunner's Herbarium the blade of the original specimen which served as the foundation for plate 3, in the first volume of *Flora Norwegica*, and also another blade belonging to the same species, marked *Fucus hyperboreus*. Corresponding blades belonging to *Laminaria digitata* (*Laminaria flexicaulis*, Le Jol.) were marked *Fucus bifurcarius*. So that, now, no doubt remains as to the identity of the plants described by Gunner.

The species is well marked by its erect, stiff, rugose stems, attenuated above, abruptly expanding into the much divided laminae. Occasionally specimens with very compressed stems, which appear to belong to Foslie's var. *compressa*, are washed ashore at the Coves, and elsewhere along the coast.

LAMINARIA DIGITATA (Linn.) *Edm.*

Fl. Shetl., p. 54.—*Fucus digitatus*, Linn., Mant. p. 134, Syst. Nat. Ed. XII., p. 178.

F. VALLIDA, *Foslie*.

Bidr., p. 27.

Descr. Laminaria flexicaulis, f. valida, *Foslie*, l.c.

Fig. „ digitata, f. valida, *Foslie*, Lam. Norw. tab. 3, fig. 1-4.

Stipe nearly cylindrical, thick below, attenuated above, passing rather abruptly into the lamina which is broad, usually shorter than the stipe, and split nearly to the base with many narrow digitate segments; base of the lamina rounded.

Hab. Berwick Bay, Sharper Head. Not uncommon.

F. TYPICA, *Foslie*.

Lam., Norw. p. 60.

Descr. Laminaria flexicaulis, a. genuina, *Le Jol.*, exam., p. 57.

Fig. „ digitata, f. typica, *Foslie*, l.c. t. 4-5, fig. 1.

Stipe thick and cylindrical below, much flattened above, passing rather abruptly into the broad lamina which is split for about half its length into numerous very narrow segments; base of lamina rounded.

Hab. Berwick Bay, Burnmouth, Holy Island, and elsewhere along the coast. Common.

F. STENOPHYLLA, *Harv.*

Descr. Laminaria digitata, var. stenophylla, *Harv.*, Phyc. Brit. pl. 338.

Laminaria stenophylla, *J. G. Ag.*, Lamin. p. 18.

Fig. „ digitata, f. stenophylla, *Harv.*, l.c.; *Foslie*, Lam. Nor. tab. 3, figs. 5-9.

Stipe slightly attenuated below, broader above, nearly cylindrical or but slightly compressed, passing gradually into the narrow lamina which is usually much longer than the stipe and split nearly to the base into numerous very narrow digitate segments, the base of the lamina wedge-shaped.

Hab. Not uncommon in exposed places near low-water mark and below. Berwick Bay, Holy Island, and elsewhere along the coast.

- Syn.* *Fucus bifurcarius*, *Gunn.*, Fl. Norw. I., p. 96.
 „ *digitatus*, *Turner*, Hist. Fuc. III., p. 66.
Laminaria pseudo-digitata, *Lamour.*, Mscr. in Herb. sec. *Le Jol.*, l.c.
 „ *stenoloba*, *De la Pyl.*, Observ. p. 118.
 „ *digitata*, *J. G. Ag.*, Spetsb. Alg. Proge, p. 2; *Kjellm.*,
 Vinteralgveg., p. 64, sec. Foslie.
Hafgygia digitata, var. *stenophylla*, *Ktz.*, Spec. Alg., p. 577 (excl.
 syn.); *Kleen*, Alg. p. 33.
Laminaria stenophylla, *Kjellm.*, l.c. p. 300.
 „ *flexicaulis*, *Le Jol.*, l.c.
Tangle, *Cloust.*, l.c.
Exsicc. *Laminaria digitata*, *Hohenack*, Alg. Mar. Sicc., no. 27.
 „ „ *Aresch.*, Alg. Scand., no. 86.
 „ „ var. *brevipes*, *Crouan*, Alg. Mar. Finist., no. 84.
Laminaria flexicaulis, *Le Jol.*, Alg. Mar. Cherb., no. 151.

A common but very variable species, distinguished from *Laminaria hyperborea* by its smooth, somewhat compressed stems, which are slightly attenuated at the base, and are destitute of muciparous glands. A further mark of distinction is to be found in the fructification, which in *Laminaria hyperborea* forms large indefinite patches spreading over the surface of the blade till only very small portions of the unaltered frond are visible; while in *L. digitata* the spores and their accompanying paraphyses are collected into comparatively small, oval, or roundish sori, scattered at wide intervals over the blade. These sori, which are usually from half an inch to an inch and a half in diameter, seldom become confluent, and never, so far as I have observed, spread into large irregular patches as they do in *L. hyperborea*.

Besides the varieties enumerated above, all of which are more or less abundant with us, a form with very short slender stipes and broad slightly divided laminæ, very rounded, almost cordate at the base, is occasionally washed ashore, I suspect that it is Foslie's var. *debilipes*.

In *L. digitata* the long slender root fibres are very numerous, and usually intricately interlaced, they spread horizontally from the base of the stem and form a sort of flat mat around it. The secondary fibres are short and produced in groups at irregular intervals along the primary fibres. Several plants are frequently bound together by their interlacing root-fibres, which are often so closely packed that no spaces can be seen between them, the mass of interlaced roots forming an almost solid disc from which the stems of the various plants arise. When washed ashore it is

usually in groups of from 6 to 10 plants bound together by their root-fibres as described above.

In *L. hyperborea*, on the other hand, the root-fibres are short and thick, and do not spread at right angles to the stem, but are usually bent downwards at a short distance from it. They do not all arise from the base of the stem, but at various heights for about six inches upwards from the base. The primary and secondary fibres are nearly alike. When found on the beach it is usually in single specimens or only two or three bound together by their roots.

LAMINARIA SACCHARINA (Linn.) Lamour.

Essai, p. 42.—*Fucus saccharinus*, Linn., Spec., Plant. II., p. 1161.

Descr. *Laminaria saccharina*, Harv., Phyc. Brit.

Fig. " " " " " pl. 289.

Esicc. " " Wyatt, Alg. Danm., no. 54; Crouan, Alg. Finist., no. 83; *Le Jol.*, Alg. Mar. Cherb., no. 55.

Syn. *Laminaria saccharina*, Foslie, Lam. Norw., p. 90; *Le Jol.*, Liste, p. 91; *J. Ag.*, Spec. Alg. I., p. 132; *Ktz.*, Spec. Alg., p. 574; *Johnston*, Fl. Ber. II., p. 226.

Laminaria caperata, *J. G. Ag.*, Spetsb. Alg. Bidr., p. 5 et 11; *Id.*, Spetsb. Alg. Till., p. 28.

Laminaria Agardhii, *Kjellm.*, Spetsb. Thallogh. II., p. 18; *Algenveg Murm. Meer.*, p. 37.

Hab. Common on rocks and stones near low-water mark, along the whole coast. All the year.

The species which I have here called *Laminaria saccharina* differs in several important particulars from the form of that species commonly found in the south of England. The fronds, even when only a few inches long, are more or less bullate, and when mature, the centre of the frond is traversed by four or five distinct rows of alternate bullations and deep depressions, the margins of the frond being usually strongly crisped. The fructification first appears on the most elevated portions of the bullations and gradually spreads to the depressions, the frond at the bottom of which remains unaltered till the spores on the more elevated portions of the blade are nearly mature. This peculiarity in the fructification gives to a fruited blade a blotchy appearance when held up to the light, owing to the portions where spores and paraphyses are present being thicker than the rest of the frond. In the southern form, on the other hand, the

fronds are usually nearly smooth with sometimes a row of shallow depressions running along the centre. The fructification, moreover, forms a distinct continuous band, not interrupted by the bullations, down the centre of the frond, the blotched appearance so marked a characteristic of the northern form being quite wanting. This northern plant seems to me to be J. G. Agardh's *Laminaria hieroglyphica*.

F. PHYLLITIS, *Le Jol.*

Liste Alg. Mar. Cherb., p. 91.—*Laminaria Phyllitis* (Stackh) Lamour., Ess., p. 22.—*Fucus phyllitis*, Stackh., Ner. Brit. t. 9.

Descr. *Laminaria Phyllitis*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 192.

Exsicc. " " Crouan, Alg. Finist., no. 82; *Le Jol.*, Alg. Mar. Cherb., no. 132.

Syn. " " J. Ag., Spec. Alg. I., p. 131; Ktz., Spec. Alg., p. 575; Ktz., Phyc. Gen., p. 345; Johnst., Fl. Ber. II., p. 226.

Laminaria saccharina (young state) Hook., Fl. Scot., part 2, p. 98.

Laminaria saccharina, var. *attenuata*, Grev., Fl. Edin., p. 282.

Fucus phyllitidis folio, Ravi, Syn., p. 40.

Hab. In pools between tide-marks. Rare. Berwick Bay, Holy Island.

Fronds long, thin, very narrow, the margins wavy, stem very short, base of the lamina fusiform.

By far the most marked of the varieties of *Laminaria saccharina* which occur on our coast. The fronds are very thin, of a pleasant yellow-brown colour, changing to green in drying. The plant usually grows where there is a constant stream of salt water running between rocks, and in all probability most of its variations from the typical form may be accounted for by this circumstance. Foslie* says that all the Norwegian specimens which he has seen bearing this name in various herbaria, should, so far as he was in a position to judge, be referred either to young specimens of Agardh's variety *membranacea*, or to the variety *longissima* (Gunn.) Foslie.

* Ueber die *Laminaria* Norwegens, p. 98.

FAMILY—**Cutleriaceæ.**

AGLAOZONIA, ZANARD.

AGLAOZONIA PARVULA (Grev.) Zanard.

Sag., p. 38.—*Zonaria parvula*, Grev., Crypt. Fl., t. 360.

Descr. *Zonaria parvula*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 341.

Exsicc. „ reptans, Crouan, Alg. Finist., no. 74.

Syn. *Aglaozonia reptans*, Ktz., Spec. Alg., p. 566; Crouan, Fl. Finist., p. 169.

Zonaria parvula, J. Ag., Spec. Alg. I., p. 107.

Padina parvula, Grev., Alg. Brit., p. 63; Hook., Br. Fl., vol. II., p.

282; Harv., Man. 1st. Edit., p. 31.

Padinella parvula, Aresch., Pug., vol. II., p. 260, t. 9, fig. 1-3.

Hab. On rocks and stones near low-water mark and below, and on the stems of *Laminaria hyperborea* (*Laminaria Cloustoni* (Edm.) Le Jol.) All the year. Berwick Bay. Very rare.

ORDER V.—FUCOIDEÆ.

FAMILY—**Fucaceæ.**

HALIDRYS, LYNGB.

HALIDRYS SILIQUOSA (Linn.) Lyngb.

Hydr. Dan., p. 37.—*Fucus siliquosus*, Linn., Spec. Plant, p. 1160.

Descr. *Halidrys siliquosa*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 66.

Exsicc. „ „ Wyatt, Alg. Danm., no. 53; Le Jol., Alg. Mar. Cherb., no. 231; Crouan, Alg. Finist., no. 112; Hohenack, Alg. Mar. Sicc., no. 33.

Syn. *Fucus siliquosus*, Linn., Syst. Nat. II., p. 716; Lightf., Fl. Scot., p. 921; Hook., Fl. Scot. II., p. 94; Johnston, Fl. Ber. II., p. 223. *Cystoseira siliquosa*, Ag., Spec. Alg., vol. I., p. 72; Grev., Fl. Edin. p. 285.

Halidrys siliquosa, J. Ag., Spec. Alg. I., p. 236; Ktz., Spec. Alg., p. 604.

Hab. On rocks and stones near low-water mark and below. All the year. Fruit Dec.—April. Common along the whole coast.

FUCUS (LINN.) DCNE. ET THUR.

FUCUS SERRATUS, *Linn.*

Sp. Plant, p. 1158.

Descr. *Fucus serratus*, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pl. 47.*Esicce.* " " *Wyatt*, Alg. Dan., no. 2; *Crouan*, Alg. Finist., no. 106; *Le Jol.*, Alg. Mar. Cherb., no. 111; *Hohenack*, Alg. Mar. Sicc., no. 32.*Syn.* *Fucus serratus*, *J. Ag.*, Spec. Alg. l., p. 211; *Ktz.*, Spec. Alg., p. 590; *Ktz.*, Phyc. Gen., p. 352; *Bornet et Thur.*, Etudes Phycol. pls. 11-14.*Hab.* Very common on rocks and stones, from half-tide level to low-water mark. Along the whole coast. All the year. Fruit Winter.FUCUS PLATYCARPUS, *Thur.*

in Ann. Sc. Natur., 3rd Ser. XVI., p. 9, pl. 2.

Descr. *Fucus platycarpus*, *Thur.*, l.c.*Fig.* " " *Bornet et Thur.*, Etud. Phycol., pls. 16 and 17.*Esicce.* " " *Le Jol.*, Alg. Mar. Cherb., no. 8.*Fucus vesiculosus*, var. *spiralis*, *Crouan*, Alg. Finist., no. 103." " var. *evesiculosus*, *Crouan*, Alg. Finist., no. 104.*Hab.* On rocks near high-water mark. Fruit all the year. Not uncommon. Berwick Bay, Scremerston, Holy Island.

Apparently a common species on our coast, the fronds broader than those of *Fucus vesiculosus*, and without bladders. The receptacles are large and not so swollen as in the last-named species, and have a narrow margin formed of the unchanged frond.

FUCUS VESICULOSUS, *Linn.*

Sp. Pl., p. 1158.

Descr. *Fucus vesiculosus*, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pl. 204.*Esicce.* " " *Wyatt*, Alg. Danm., no. 152; *Crouan*, Alg. Finist., no. 102; *Hohenack*, Alg. Mar. Sicc., no. 31.*Hab.* Very common all along the coast on rocks and stones between tide-marks. All the year.

The following are amongst the most distinct forms of this variable species which occur at Berwick.

F. SPHÆROCARPA, *J. Ag.*

Grönl. Lam. och Fuc., p. 29.

"Ultimate divisions of the frond repeatedly forked, bearing very numerous small receptacles" (*Farlow*, Mar. Alg. New Eng. p. 101.)

A very small form of this variety grows on the rocks near high-water mark at the Singing Coves, and a little to the southward of them. The fronds are very narrow, from an inch to two inches and a half high, either simple or once or twice dichotomously branched, the midrib distinct, the receptacles small and very obtuse. In my Herbarium I have called this variety *forma nana*, but I do not know whether it has already received a name.

F. LATERIFRUCTA, *Grev.*

Scott. Crypt. Fl. VI., p. 319.

"The lateral branches which bear the receptacles, narrow and densely dichotomously flabellate" *Farlow*, l.c., p. 100.

This variety, which is not uncommon on our coast, bears a very close resemblance to *Fucus ceranoides*, but is much thicker and more opaque.

F. SPIRALIS, *Linn.*

Sp. Pl., p. 1159.

"Fronds short and spirally twisted" *Farlow*, l.c.

Common near the mouth of the Tweed.

F. BALTICA, *J. Ag.*

Spec. Alg. I., p. 210.

Syn. *Fucus vesiculosus*, var. *subecostatus*, *Ag.*, Spec. Alg., p. 91.

Fucus balticus, *Ag.*, Swensk., Bot. tom. 8, tab. 516; *Grev.*, Crypt. Fl. t. 181; *Harv.*, Phyc. Brit. Descr., pl. 204; *Harv.*, Man. p. 18; *Ktze.*, Tab. Phyc. x., pl. 12; *Gobi*, Brauntange, p. 19, t. 2, fig. 19-22.

Exsicc. *Fucus vesiculosus*, var. *baltica*, *Orn.*, Alg. Finist., no. 105; *Desmaz.*, Exsicc. 2nd Ser. 203; *Aresch.*, Alg. Scand. Ser. nov. 1.

Hab. Along the muddy banks of the Tweed above the railway bridge on the Tweedmouth side of the river. Local but abundant.

Fronds from one to three inches long, very narrow, irregularly dichotomously branched, bladders wanting, midrib indistinct.

A curious variety grows on the mud, amongst the roots of *Scirpus maritimus*, and the rank grassy herbage along the margin of the river at the Yarrow haugh, about three-quarters of a mile above the railway bridge. Unlike most of the *Fuci*, which are usually attached by scutate roots to rocks and stones this variety invariably creeps along in the mud, the short stiff fronds standing nearly erect, usually closely packed together so as to form indefinite patches which appear to be held in place simply by the soft mud in which they grow.

FUCUS CERANOIDES, Linn.

Sp. Pl., p. 1158.

Descr. *Fucus ceranoides*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 271.

Exsicc. „ „ Wyatt, Alg. Danm., no. 154; Crouan, Alg. Finist., no. 101; Le Jol., Alg. Mar. Cherb., nos. 91 et 190.

Syn. „ „ J. Ag., Spec. Alg. I., p. 209; Ktz., Spec. Alg., p. 590; Græv., Alg. Brit., p. 14; Hook., Br. Fl. II., p. 267.

Hab. On rocks and stones between tide-marks where fresh-water streams enter the sea. All the year. Local but abundant. Estuary of the Tweed.

PELVETIA, DCNE. ET THUR.

PELVETIA CANALICULATA (Linn.) Dcne. et Thur.

Rech. Fuc., p. 12.—*Fucus canaliculatus*, Linn., Syst. Nat. 2, p. 716.Descr. *Fucus canaliculatus*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 229.

Exsicc. „ „ Wyatt, Alg. Danm., no. 102.

Fucodium canaliculatum, Crouan, Alg. Finist., no. 98.*Pelvetia canaliculata*, Le Jol., Alg. Mar. Cherb., no. 33; Rabenh., Alg. Europ., no. 1556.

Syn. „ „ Le Jol., List. Alg. Mar. Cherb., p. 94.

Fucus canaliculatus, Ktz., Spec. Alg., p. 590; Id., Phyc. Gen., p. 352; Lightf., Fl. Scot., p. 917; Johnston, Fl. Ber. II., p. 223.*Fucodium canaliculatum*, J. Ag., Spec. Alg. I., p. 204.

Hab. On rocks and stones from high-water mark to half-tide level. All the year. Fruit May—Sept. Common. Berwick Bay, Burnmouth, Scremerston, Holy Island, and elsewhere along the coast.

ASCOPHYLLUM, STACK.

ASCOPHYLLUM NODOSUM (Linn.) Le Jol.

Liste Alg. Mar. Cherb., p. 96.—*Fucus nodosus*, Linn., Sp. Pl., p. 1159.Descr. *Fucus nodosus*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 158.

Exsicc. „ „ Wyatt, Alg. Danm., no. 154.

Fucodium nodosum, Crouan, Alg. Finist., no. 100; Hohenack, Alg. Mar. Sicc., no. 30.*Ascophyllum nodosum*, Le Jol., Alg. Mar. Cherb., no. 101.

- Syn.* *Ascophylla lævigata*, *Stackh.*, Tentam., p. 66 (1809).
Ozothallia vulgaris, *Dcne.*, in An. Sc. Nat. 1845, p. 13; *Ktz.*, Spec. Alg., p. 591.
Physocaulon nodosum, *Ktz.*, Phyc. Gen., p. 352.
Fucus nodosus, *Grev.*, Fl. Edin., p. 284; *Hook.*, Fl. Scot. pt. II., p. 94; *Lightf.*, Fl. Scot. II., p. 918; *Johnston*, Fl. Ber. II., p. 222.
Fucodium nodosum, *J. Ag.*, Spec. Alg. I., p. 206.
Hab. On rocks and stones from high-water mark to half-tide level. All the year. Fruit Winter. Common all along the coast.

HIMANTHALIA, LYNGB.

(SEA THONGS, BUTTON WRACK, SAILORS' BUTTONS.)

HIMANTHALIA LOREA (Linn.) Lyngb.

- Hydr.* Dan., p. 36, t. 8.—*Fucus loreus*, *Linn.*, Syst. Nat. II., p. 716.
Descr. *Himanthalia lorea*, *Harv.*, Phyc. Brit.
Fig. „ „ *Harv.*, l.c. pl. 78.
Exsicc. „ „ *Wyatt*, Alg. Danm., no. 3; *Crouan*, Alg. Mar. Finist., no. 97; *Le Jol.*, Alg. Mar. Cherb., no. 72; *Hohenack*, Alg. Mar. sicc., no. 166.
Syn. „ „ *J. Ag.*, Spec. Alg. I., p. 196; *Ktz.*, Spec. Alg., p. 587; *Grev.*, Alg. Brit., p. 20, t. 3; *Johnston*, Fl. Ber. II., p. 224.
Fucus longo angusto crassoque folio, *Ravi.*, Syn., p. 43, n. 11.
Hab. Common on exposed rocks near low-water mark. All the year. Fruit Summer and Autumn. Berwick Bay, Greenses, Burnmouth, Scremerston, and elsewhere along the coast.

ORDER VI.—DICTYOTACEÆ.

DICTYOTA, LAMOUR.

DICTYOTA DICHOTOMA (Huds.) Lamour.

- Ess.*, p. 58.—*Ulva dichotoma*, *Huds.*, Fl. Angl., 2nd Edit., p. 568, 1st Edit., p. 476.
Descr. *Dictyota dichotoma*, *Harv.*, Phyc. Brit.
Fig. „ „ *Harv.*, l.c., pl. 103.
Exsicc. „ „ *Wyatt*, Alg. Danm., no. 10; *Crouan*, Alg. Finist., nos. 68 et 69; *Rabenh.*, Alg. Eur., no. 1318.
Syn. „ „ *J. Ag.*, Spec. Alg. I., p. 92.
Zonaria dichotoma, *Ag.*, Spec. Alg. I., p. 133; *Hook.*, Fl. Scot. II., p. 90; *Grev.*, Fl. Edin., p. 297.
Dichophyllum vulgare, *Ktz.*, Phyc. Gen., p. 337, t. 22.
„ *dichotomum*, *Ktz.*, l.c., p. 338.
„ *implexum*, *Ktz.*, l.c., p. 338.
Hab. On rocks and Algæ at low-water mark and below. Very rare. Berwick Bay, near the Coves.

CLASS IV.—RHODOPHYCEÆ.

ORDER VII.—FLORIDEÆ.

FAMILY—**Porphyraceæ.**

PORPHYRA, Ag.

(LAVER, SLAKE, SLOCAUM.)

PORPHYRA COCCINEA, *J. Ag.*

(Mscr. 1836) Till. Alg. Syst. vi., p. 56.

Descr. Porphyra coccinea, *J. Ag.*, l.c.

Fig. „ „ *J. Ag.*, l.c. pl. ii., fig. 41, 43; *Aresch.*, Phyc. Scand. Mar., p. 181, tab. 1, D. (sect. transv.)

Exsicc. Porphyra minima, *Crouan*, in *Desmaz*, Exs., ser. 2, no. 612.

Porphyra delicatula, *Welw.*, Pl. Lusit., no. 293.

Syn. Porphyra coccinea, *J. Ag.*, Nov. Fl. Suec., p. 6 (sine descr.)

Porphyra minima, *Crouan*, Fl. Finist., p. 132.

Hab. On a specimen of *Halidrys siliquosa* cast ashore from deep water. Very rare. Berwick Bay.

A pretty little, bright-coloured species. The fronds which are very delicate and easily torn, are from a quarter to one and a half inches in diameter, sessile, oval or roundish in outline, the margins more or less crisped. The cells composing the frond are very minute, a circumstance which serves to mark the species.

PORPHYRA LEUCOSTICTA, *Thur.*

in *Le Jol.*, Liste Alg. Mar. Cherb., p. 100.

Descr. Porphyra leucosticta, *Le Jol.*, l.c.

Fig. „ „ *J. Ag.*, Till. Alg. Syst. vi., p. 64, pl. ii., fig. 55-58.

Exsicc. Porphyra laciniata, *Crouan*, Alg. Finist., no. 397 (non Ag.)

Porphyra leucosticta, *Holmes*, Alg. Brit. Rar., no. 46.

Porphyra vulgaris, *Rabenh.*, Alg. Sachs., no. 900; *Lloyd*, Alg. de l'Ouest, no. 7; *Erbario Crittog. Ital.*, no. 278 (non *Harv.*, nec. *Crouan.*)

Hab. On rocks and Algæ from half-tide level to low-water mark. Dec. —June. Not uncommon. Berwick Bay, Scremerston, Holy Island, and elsewhere along the coast.

Easily distinguished from *Porphyra laciniata* by the position of the antheridia which form yellowish-white patches within the margin of the frond, and not a marginal zone as in that species.

PORPHYRA LINEARIS, *Grev.*

Alg. Brit., p. 170, t. XVIII.

Descr. *Porphyra linearis*, *Grev.*, l.c.; *J. Ag.*, Till. Alg. Syst. vi., p. 71.*Fig.* " " *Grev.*, l.c.; *J. Ag.*, l.c. pl. II., fig. 67; *Ktz.*, Tab.

Phyc. XIX., t. 79.

Exsicc. " " *Wyatt*, Alg. Danm., no. 163; *Crouan*, Alg.Finist., no. 395; *Hohenack*, Alg. Mar. Sicc., no. 57; *Le Jol.*,

Alg. Mar. Cherb., no. 96.

Syn. *Porphyra linearis*, *Ktz.*, Spec. Alg., p. 691.*Porphyra vulgaris* (partim) *Harv.*, Phyc. Brit., pl. 211, fig. 2.*Hab.* On rocks and stones near high-water mark. Fruit Jan. and Feb.

Not uncommon. Berwick Bay, Scremerston, Holy Island.

A small winter species with narrow lanceolate fronds, the antheridia and tetraspores as in *Porphyra laciniata*.

PORPHYRA LACINIATA (Lightf.) *Ag.*

Syst. Alg., p. 190.—*Ulva laciniata*, *Lightf.*, Fl. Scot., p. 974, t. 33.

F. TYPICA, *Strömf.*

Algveg. Isl. Kust., p. 34.

Descr. *Porphyra laciniata*, *Thur.* in *Le Jol.*, Liste Alg. Mar. Cherb., p. 100.*Exsicc.* " " *Aresch.*, Alg. Scand. Exsicc., no. 116.F. UMBILICALIS (Linn.) *Kleen.*

Nordl. Alg., p. 23.—*Ulva umbilicalis*, *Linn.*, Spec. Plant, p. 1163.

Descr. *Ulva umbilicalis*, *Lyngb.*, Hydr. Dan., p. 28.*Exsicc.* *Porphyra laciniata*, f. B. *Aresch.*, Alg. Scand. Exs., no. 260.F. VULGARIS (*Ag.*) *Le Jol.*Liste, p. 99.—*Porphyra vulgaris*, *Ag.*, Aufz., p. 18.*Descr.* *Porphyra vulgaris*, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pl. 211.*Exsicc.* " " *Le Jol.*, Alg. Mar. Cherb., no. 196; *Crouan*, Alg. Finist., no. 396; *Wyatt*, Alg. Danm., no. 32.*Syn.* *Porphyra laciniata*, *Ag.*, Syst., p. 190; *Harv.*, Phyc. Brit., pl. 92; *Ktz.*, Spec. Alg., p. 692; *Ktz.*, Tab. Phyc. XIX., pl. 82; *Le Jol.*, Liste, p. 99; *Thuret et Bornet*, Etud. Phycol. p. 58, pl. 31.*Ulva laciniata*, *Ag.*, Syst. Alg. I., p. 404; *Johnston*, Fl. Berwk. II., p. 249.*Porphyra umbilicalis*, *Ktz.*, Phyc. Gener., p. 383; *J. Ag.*, Till. Alg., Syst. VI., p. 66, pl. 2, fig. 61.

Porphyra purpurea, *b. umbilicata*, *Ag.*, Syst. Alg., p. 191.

Porphyra vulgaris, *Ktz.*, Spec. Alg., p. 692.

Hab. On exposed rocks and stones from high-water mark to about half-tide level. Fruit July—Oct. Very common along the whole coast.

DIPLODERMA, KJELLM.

DIPLODERMA MINIATUM (Ag.) Kjellm.

Alg. Arct. Sea, p. 189.—*Ulva purpurea*, *b. miniata*, *Ag.*, Syn. Alg., p. 42.

Descr. *Ulva miniata*, *Lyngb.*, Hydr. Dan., p. 29.

Fig. *Diploderma miniatum*, *Kjellm.*, l.c. t. 18, fig. 9.

Syn. *Porphyra miniata*, *Ag.*, Syst., p. 191; *Aresch.*, Phyc. Scand., p. 181 (partim); *Ktz.*, Tab. Phyc., vol. xix., t. 81; *J. Ag.*, Till. Alg. Syst. vi., p. 60, pl. ii., figs. 44-48.

Hab. On rocks in deep water below tide-marks. Occasionally washed ashore near the Greenses.

A rare and beautiful species with broad, deep-red fronds, often 6 inches or a foot in breadth, composed of two layers of large subquadrate cells.

In the genus *Porphyra* the fronds are composed of a single layer of cells, while in the present genus they consist of two layers. The genera *Porphyra* and *Diploderma* amongst the *Porphyraceæ* are thus analogous to *Monostroma* and *Ulva* amongst the *Ulvaceæ*.

BANGIA, LYNGB.

BANGIA FUSCO-PURPUREA (Dillw.) Lyngb.

Hydr. Dan., p. 83, t. 24.—*Conferva fusco-purpurea*, *Dillw.*, Conf., p. 54, t. 92.

Descr. *Bangia fusco-purpurea*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 96.

Exsicc. „ „ *Wyatt*, Alg. Danm., no. 167; *Crouan*, Alg. Finist., no. 393.

Syn. „ „ *Ktz.*, Spec. Alg., p. 360; *Reinke*, Ueber die Geschlechtspflanzen von *Bangia fusco-purpurea*, pls. 12, 13; *Johnst.*, Fl. Ber. ii., p. 259.

Bangia atro-purpurea, *Ag.*, Syst., p. 76; *Ktz.*, Phyc. Gen., p. 250.

Bangia versicolor, *Ktz.*, l.c., p. 250, t. 45, fig. 3.

Conferva fusco-purpurea, *Eng. Bot.*, t. 2055.

„ *atro-purpurea*, *Roth*, Cat. Bot. iii., p. 208, t. 6; *Dillw.*, Conf. t. 103; *Eng. Bot.*, t. 2085.

Hab. On smooth rocks and stones near-high water mark. March to Sept. Not uncommon, but very uncertain in its appearance. Near the Coves.

ERYTHROTRICHIA, ARESCH.

ERYTHROTRICHIA CERAMICOLA (Lyngb.) Aresch.

Phyc. Scand., p. 210.—*Conferva ceramicola*, Lyngb., Hydr. Dan., p. 114, t. 48, D.

Descr. *Bangia ceramicola*, Harv., Phyc. Brit.

Fig. *Erythrotrichia ceramicola*, Le Jol., Liste des Alg. Mar. Cherb., pl. III., fig. 1, 2.

Exsicc. *Bangia ceramicola*, Holmes, Alg. Brit. Rar., no. 52.

Syn. " " Chauv., Rech. sur l' organ. d' Alg., p. 29 ;

Harv., Phyc. Brit., pl. 317 ; Hauck, Meeresalg., p. 22.

Hab. Epiphytic on Algæ near low-water mark. Summer and Autumn. Berwick Bay, Scremerston.

When examining specimens of the smaller filamentous Algæ under the microscope one often meets with a few filaments of this species. It is, however, very rarely found in sufficient quantity to make herbarium specimens.

FAMILY—**Squamariaceæ.**

PEYSSONNELIA, DECAISNE.

PEYSSONNELIA DUBYI, Crouan,

Ann. Sc. Nat., (1844) p. 368, pl. 11B.

Descr. *Peyssonnelia Dubyi*, Crouan, l.c. ; Harv., Phyc. Brit.

Fig. " " Crouan, Fl. Finist., pl. 19, fig. 130 (lower figure) ; Harv., Phyc. Brit., pl. 71.

Exsicc. " " Crouan, Alg. Mar. Finist., no. 236.

Syn. " " J. Ag., Spec. Alg. II., p. 501 ; J. Ag., Epicr., p. 384 ; Ktz., Spec. Alg.

Hab. On rocks, stones, and shells from half-tide level to low-water mark. Also on the roots of *Laminaria hyperborea*. All the year. Fruit Jan.—June. Not uncommon. Berwick Bay, Rocks north of Dodd's Well, near the Coves, and elsewhere along the coast.

This interesting species is often to be found on the calcareous incrustations formed by *Lithothamnion polymorphum* near low-water mark, and on the roots of *Laminaria hyperborea*.* The fronds are orbicular or lobed, dark reddish brown or purplish,

* I have never noticed this species on the stems of *Laminariæ*, its place being taken by *Petrocelis Hennedyi*.

parenchymatous throughout, the cells of the thallus a little broader than long. The fructification is in external convex warts (nemathecia), the tetraspores cruciate, large, almost as long as the nemathecial filaments, the cystocarps composed of few spores placed one above the other, in one, two, or three rows. The nemathecial filaments are short and composed of few cells, which are twice as long as broad below, much shorter above.

PEYSSONNELIA HARVEYANA, *Crn.*

in *J. Ag.*, Spec. Alg. II., p. 501.

Descr. Peyssonnelia Harveyana, *J. Ag.*, l.c.

Fig. " " *Crn.*, Fl. du Finist., pl. 19, Gen. 129, figs. 4 and 5.

Hab. On rocks near low-water mark. Fruit Winter. Rare. Berwick Bay.

The fronds of the present species are thicker and smoother than those of *P. Dubyi*, which outwardly they much resemble. Under the microscope, however, the two species are easily separable. The fronds of *P. Dubyi* are very thin, and composed of large cells which are *broader than long* in all parts of the frond. In specimens bearing favellæ the cells of those portions of the frond underlying the nemathecia are much smaller just below the nemathecial filaments than at the base of the frond, but they are still broader than long or, square. In *P. Harveyana* the fronds are thick and composed below of large angular, irregularly shaped cells, which become gradually narrower upwards till near the surface of the frond they are not much more than half the breadth of the basal cells. The cells are usually about *twice as long as broad*, except near the centre of the frond where a few rows of nearly square cells occur.

With us *P. Harveyana* is very much rarer than *P. Dubyi*.

RHODODERMIS, CROUAN.

RHODODERMIS ELEGANS, *Crouan*.

in *J. G. Ag.*, Spec. Alg., p. 505.

Descr. Rhododermis elegans, *Crouan*, l.c.

Fig. " " *Crouan*, Flor. du Finist., pl. 19, fig. 130 (upper figure).

Syn. " " *J. G. Ag.*, Epicr., p. 391.

F. POLYSTROMATICA, *Batters*, in *Holmes's Alg. Brit. Exsicc.*

Thallus crustam formans *multis stratis cellularum* constructam.

Cetera ut in forma typica. Tab. Nost. XI., fig. 1A and B.

Exsicc. *Rhododermis elegans*, f. *polystromatica*, *Holmes*, *Alg. Brit. Rar. Exsicc.*, no. 92.

Hab. On rocks near low-water mark. Rare. Fruit Jan. and Feb. Berwick Bay.

A rare species forming very thin crusts on rocks near low-water mark. The fronds are roundish or indefinite in outline from half an inch to a foot or more in diameter, composed of *several layers* of cells, and not as in the typical form of *two layers* only; the cells of the thallus about $\cdot 006$ mm. long by $\cdot 007$ mm. broad; the sori usually very numerous, and produced on all parts of the frond except the extreme margin; the paraphyses short, stiff, distinctly curved, about $\cdot 064$ mm. long by $\cdot 005$ or $\cdot 006$ mm. broad; the tetraspores large and cruciate about $\cdot 026$ mm. long by $\cdot 012$ mm. broad. The thickness of the frond varies in different individuals from $\cdot 050$ to $\cdot 105$ mm.

I am indebted to Dr. Bornet for comparing specimens of my Berwick plant with Crouan's original specimens of *Rhododermis elegans*, and for pointing out that they belonged to the genus *Rhododermis*, and not to *Peyssonnelia* as I had at first supposed. I am also indebted to Mr. T. H. Buffham for taking measurements of this and the next species.

RHODODERMIS PARASITICA, *Batters*, in *Holmes's Alg. Brit. Exsicc.*

Thallus crustam parenchymaticam nigro-rubram formans cellulis multis in seriebus verticalibus dispositis constructam; filis verticalibus $\cdot 120$ — $\cdot 135$ mm. longis, inferne $\cdot 008$ mm. crassis, superne $\cdot 007$ mm. crassis; cellulis circiter $\cdot 009$ mm. longis. Tétrasporeæ circiter $\cdot 028$ mm. longæ, $\cdot 012$ mm. crassæ, in soris superficialibus inter paranemata $\cdot 05$ — $\cdot 06$ mm. longa, circiter $\cdot 005$ mm. crassa simplicia, curvula, rigidiuscula evolutæ.

Tab. Nost. XI., fig. 2A and B.

Exsicc. *Rhododermis parasitica*, *Holmes*, *Alg. Brit. Rar. Exsicc.*, no. 93.

Hab. On the stems of *Laminaria hyperborea*. Fruit Jan. and Feb. Rare. Berwick Bay.

A thicker, darker coloured plant than *Rhododermis elegans*, and so far as I have observed, always epiphytic on *Laminaria hyperborea*. The fronds form thin, dark-red, almost black crusts,

roundish or irregular in outline, on the stems of the host plant, to which they are strongly attached by their entire under surface; the substance is parenchymatous throughout; the tetraspores cruciate, or irregularly divided, and mixed with short, stiff, free paraphyses which curl over them in a most characteristic way. The thallus varies greatly in thickness, the vertical filaments consisting of from 12 to 30 cells. Even different portions of the same frond are of very different thickness, the thallus of the *Rhododermis* being much thicker where it grows over a depression in the stem of the host plant. The cells of the thallus are a little longer than broad, being about .009 mm. long, and .008 mm. broad at the base of the frond, .007 mm. broad near the surface. The sori, which are never very numerous, form indefinite dull patches, rather lighter coloured and pinker than the rest of the frond, and scattered very irregularly over its surface. The outline of the thallus is hardly ever to be seen as the *Rhododermis* usually entirely encircles the stems of the *Laminaria* for a distance of several inches, and is more or less infested by other Algæ, such as *Ptilota plumosa*, *Polysiphonia urceolata*, *Delesseria alata*, *Delesseria sinuosa*, *Euthora cristata*, etc.

In *Rhododermis elegans* the thallus cells are broader than long, and of uniform thickness in all parts of the frond, in *Rhododermis parasitica* they are longer than broad, and of different thickness at the base and surface of the frond, the thallus of the latter plant is, moreover, thicker, denser in substance, and darker coloured than that of the former.

PETROCELIS, J. AG.

PETROCELIS CRUENTA, J. Ag.

Spec. Alg. II., p. 490.

Descr. *Petrocelis cruenta*, Farlow, Mar. Alg. New Eng., p. 115.

Fig. " " *Le Jol.*, Liste Alg. Mar., pl. III., figs. 3, 4;
Farlow, l.c. pl. 14, fig. 1.

Æsicc. " " *Crouan*, Alg. Finist., no. 233.

Syn. *Cruentia pellita*, Harv., Phyc. Brit. pl. 117; Ktz., Spec. Alg., p. 533 (non Fries.)

Hab. On rocks from near high-water mark to about half-tide level.

Fruit Jan. and Feb. Not uncommon. Spittal, Scremerston.

PETROCELIS HENNEDYI (Harv.) Batters, in *Holmes's Alg. Brit. Exsicc.*—*Actinococcus Hennedyi*, Harv., in *Nat. Hist. Rev.*, vol. iv. (1857), p. 202, pl. 13A, fig. 1.

Descr. *Actinococcus Hennedyi*, Harv., l.c.

Fig. „ „ Harv., l.c.; Tab. Nost. xi., fig. 3, 4.

Exsicc. *Petrocelis Hennedyi*, Holmes, *Alg. Brit. Rar., Exsicc.*, no. 89.

Syn. *Cruoria pellita*, (Lyngbyei) Rupr., Tang. d. Ochotskischen Meeres., p. 138, t. 18C-E.

Petrocelis Ruprechtii, Hauck, *Meeresalg.*, p. 30 (1883) (ex ipso Hauck.)

Hab. On rocks near low-water mark or more frequently on the stems of *Laminaria hyperborea*. Fruit Jan. and Feb. Not uncommon. Berwick Bay, Sharper Head.

To the naked eye this plant is indistinguishable from *Petrocelis cruenta*, but whereas in the last-named species only one tetraspore is formed in a single filament of the thallus, in *Petrocelis Hennedyi*, from six to eight or even twelve tetraspores are formed from adjacent cells of the same filament.

The plant forms glossy, dark purple, almost black, fleshy patches, roundish or irregular in outline, on the stems of *Laminaria hyperborea*, or more rarely on rocks near low-water mark. The frond is composed of simple, vertical, parallel filaments firmly united below, but above rather loosely held together by a gelatinous substance. The tetraspores are large and cruciate, subquadrate rather than oval. The cystocarps, which I believe have never been described, are composed of numerous rather small spores placed one above the other in one, two, or three rows (vide Plate xi., fig. 4.) Most of the specimens of this species which I gathered in January 1887 were fruited, tetrasporic plants being much more plentiful than those bearing cystocarps.

I am indebted to Prof. E. Perceval Wright, of Dublin, for comparing a specimen of the Berwick plant with Harvey's original specimens of *Actinococcus Hennedyi* in the Herbarium of Trinity College, and to Mr. G. W. Traill for comparing one with Hennedy's specimens in Edinburgh.

The fronds of the present species and of *Cruoria pellita* are, with us, frequently infested by a green unicellular parasite which grows amongst the vertical filaments of the thallus. It forms ovoid or pyriform green sacs surrounded by a gelatinous limbus, drawn out below into a slender stem. It appears to be the plant discovered by Kjellman in the fronds of *Sarcophyllis*, to which

he gave the name *Chlorochytrium inclusum*.* Harvey seems to have mistaken it for an abnormal form of the fructification of *Cruoria adhærens*.†

CRUORIA, FRIES.

CRUORIA PELLITA (Lyngb.) Fries.

Fl. Scan., p. 316.—*Chætophora pellita*, Lyngb., Hydr. Dan., p. 193, t. 66.

Descr. *Cruoria pellita*, J. Ag., Spec. Alg. II., p. 491.

Fig. " " *Le Jol.*, Liste. Alg. Mar. Cherb., pl. iv., figs. 1-2-3;
Tab. Nost. XI., fig. 5.

Exsicc. " " *Le Jol.*, Alg. Mar. Cherb., no. 106.

Cruoria adhærens, Crouan, Alg. Finist., no. 234.

Syn. " " *Crn.* in J. Ag., Spec. Alg. II., p. 491.

Nemalion adhærens, *Crn.*, Flor. du Finist., p. 146.

Cruoria pellita, J. Ag., Epicr. p. 377 (non *Harv.* nec. *Ktz.*)

Hab. On rocks near low-water mark; also on the stems of *Laminaria hyperborea*. Fruit Jan. and Feb. Rare. Sharper Head, Near the Coves.

Except under the microscope this species cannot be distinguished from *Petrocelis cruenta* or *P. Henedyi*. Like them it forms glossy, dark red or purple crusts on rocks or the stems of *Laminaria hyperborea*. The frond is composed of simple, or more or less forked, vertical filaments, which are loosely united and easily separable under pressure. The large, oblong, zonate tetraspores are attached to the sides of the filaments,‡ the cystocarps, which with us are much more rarely found, are composed of a few large spores arranged in one or two rows. (vide Plate XI., fig. 5.)

HÆMATOCELIS, J. AG.

HÆMATOCELIS FISSURATA, Crouan.

Flor. du Finist., p. 148, pl. 19, fig. 127.

Hab. On rocks near low-water mark. Rare. Berwick Bay.

In January 1887, and again last January, I gathered at Berwick specimens of a plant which seems to be Crouan's

* Kjellman, Alg. Arct. Sea, p. 320.

† Harvey, Nat. Hist. Rev., vol. IV., p. 203.

‡ I have never seen pedicellate tetraspores as represented by Harvey and Crouan, all my specimens exactly agreeing with Le Jolis' figure, referred to above.

Hæmatocelis fissurata, but I have not had an opportunity of comparing them with authentic specimens of that species. In any case my specimens agree well with the figure and description in the "Florule du Finistère."

The plant forms dark-red or purple crusts on stones and shells near low-water mark. The fronds are from half an inch to an inch and a half or even two inches in diameter, roundish or irregular in outline, soft and gelatinous in substance, composed of creeping threads from which arise vertical filaments bent horizontally below. The articulations are three or four times as long as broad below, much shorter above. The fruit of this species is unknown.

HÆMATOPHLÆA, J. Ag.

HÆMATOPHLÆA CROUANII, J. Ag.

Descr. et Fig. *Hæmatophlæa Crouanii*, *Crouan*, Ann. Sc. Nat., 4th Ser., t. 9, pl. 3, fig. 6A-B-C; *Id.*, Flor. du Finist., pl. 19, fig. 125.

Syn. " " *J. G. Ag.*, Spec. Alg. II., p. 495 et *Epicr?* (*excl.* *Syn.* *Hilden. rubra Harv.*, Phyc. Brit.)

Hab. On rocks near low-water mark. Fruit Dec.—March. Berwick Bay. Very rare.

This rare and interesting species forms reddish, or blackish-red, crusts on rocks and stones near low-water mark. To the naked eye the crusts resemble those of *Hildenbrandtia rosea*, but under the microscope the difference between the two plants is at once apparent.

The fronds of *Hæmatophlæa Crouanii* are composed of large nearly square cells, and the tetraspores, which are nearly as long as the short paraphyses, are produced in superficial nemathecium, as described by Crouan. The fronds of *Hildenbrandtia rosea*, on the other hand, are composed of small cells, and the tetraspores are produced in cavities sunk in the surface of the frond.

In his *Epicrisis Floridearum*,* Prof. J. G. Agardh expresses a

* *Epicrisis*, p. 379. When speaking of *H. Crouanii*, Prof. Agardh says:—"In specimine typico hujus plantæ, mihi a cel. Crouan misso, paranemata nulla vidi, ut in descriptione l.c. expressis verbis dixerim. Nostra, itaque, species diversa videtur ab illa, quam nomine *H. Crouanii* in Flor. Finist., pl. 19, no. 125, pinxit celi. Crouan. Cum nostra, contra, convenie videtur quæ eodem loco sub nomine *Hildenbrandtiæ roseæ* (Pl. 19, fig. 126)

doubt whether *Hæmatophlæa Crouanii* and *Hildenbrandtia rosea* are really generically distinct, but in a letter to me, referring to Berwick specimens of the two plants which I had sent him, he says:—"Thank you very sincerely for the specimens, and for the means you put in my hands of comparing a true *Hæmatophlæa Crouanii* with the *Hildenbrandtia rosea*. Certainly they are very distinct, and no doubt they are to be referred to different Genera. From the few remarks in the *Epicrisis*, you will find, I think, that I supposed different species confounded, but in want of good and rightly named specimens, it was not, at the time, in my power to make out their differences and to put each in its right place."

FAMILY—**Hildenbrandtiaceæ:**

HILDENBRANDTIA, NARDO.

HILDENBRANDTIA ROSEA, Ktz.

Spec. Alg., p. 694.

Descr. *Hildenbrandtia rosea*, *J. Ag.*, Spec. Alg. II., p. 495.

Fig. " " *Ktz.*, Tab. Phyc. vol. XIX., t. 91.

Exsicc. " " *Crouan*, Alg. Finist., no. 235.

Syn. " " *J. Ag.*, *Epicr.* p. 379. (excl. *Syn. Hæmatophlæa Crouanii*, *Crn.*)

Hildenbrandtia rubra, *Harv.*, Phyc. Brit., p. 250.

Hab. On rocks and stones in shallow pools between tide-marks. Fruit Oct.—April. Common. Berwick Bay, Spittal, Scremerston, and elsewhere along the coast.

delineata est. In nostra tamen sphærosporas non sessiles, sed in filo breviole, articulato pedicellatas observavi."

And again *Epicrisis*, p. 380. "Icones a Harvey et Crouan datas comparanti insignis adpareat fructus differentia. In planta Crouanii nemathecias superficialia videntur et sphærosporæ fere quales in *Hæmatoceli* obveniunt dispositæ. In planta Harveyana in cryptis excavatis supra fundum basalem proveniunt sphærosporæ. Si fidæ observationes, certum mihi videtur plantas esse diversas et forsan diversorum generum. Planta Crouani structura frondis a *Hæmatoceli*, spærosporis zonatim divisas a *Peyssonnelia* differre videtur."

FAMILY—**Wrangeliaceæ.**

CHANTRANSIA, FRIES.

CHANTRANSIA VIRGATULA (Harv.) Thur.

in *Le Jol.*, List Alg. Mar. Cherb., p. 106.—Callithamnion
virgatum, *Harv.* in *Hook.*, Br. Fl. II., p. 349.

Descr. Callithamnion virgatum, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 313.

Trentepohlia virgatula, *Farlow*, Mar. Alg. New Eng., pl. x., fig. 3.

Exsicc. Callithamnion virgatum, *Wyatt*, Alg. Danm., no. 189; *Crouan*,
Alg. Finist., no. 116.

Syn. " " *J. Ag.*, Epicr. p. 7.

Callithamnion Daviesii, *J. Ag.*, Spec. Alg. II., p. 11; *Ktz.*, Spec.
Alg., p. 638, partim (non *Eng. Bot.*)

Hab. Epiphytic on the smaller Algæ, especially *Ceramium rubrum*.
May—Oct. Rare. Berwick Bay.

CHANTRANSIA SECUNDATA (Lyngb.) Thur.

in *Le Jol.*, Liste Alg. Cherb., p. 106.—Callithamnion
Daviesii, b. secundatum; *Lyngb.*, Hydr. Dan., p. 129, t. 41.

Descr. Callithamnion secundatum, *J. Ag.*, Spec. Alg. II., p. 13; *Id.*,
Epicr. p. 9.

Fig. " " *Lyngb.*, l.c.

Exsicc. " " *Crouan*, Alg. Finist., no. 177.

Chantransia secundata, *Le Jol.*, Alg. Mar. Cherb., no. 124.

Trentepohlia secundata, *Aresch.*, Alg. Scand. Exsicc., no. 84.

Syn. Callithamnion Lenormandi, *Suhr.*, *Ktz.*, Spec. Alg., p. 640.

Hab. On *Cladophora rupestris*, *Rhodymenia palmata*, *Sphacelaria*
radicans, and other Algæ in exposed puddles from half-tide
level to low-water mark. Rather rare. May—Oct. Fruit
July—Sept. Berwick Bay, Scremerston.

CHANTRANSIA DAVIESII (Dillw.) Thur.

in *Le Jol.*, List, p. 106.—Conferva Daviesii, *Dillw.*, Conf.
intr. p. 73.

Descr. Callithamnion Daviesii, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 314.

Syn. " " *Lyngb.*, Hydr. Dan., p. 129, t. 41; *J. Ag.*,
Spec. Alg. II., p. 11; *Id.*, Epicr. p. 8.

Trentepohlia Daviesii, *Harv.* in *Mack.*, Fl. Hib., pt. 3, p. 219;
Farlow, Mar. Alg. New Eng., p. 109.

Acrochætium Daviesii, *Naeg.*, Morph. und Syst. Ceram., p. 412.

Hab. On *Ceramium rubrum*, *Rhodymenia palmata*, and other small Algæ
at very low-water mark. Fruit Aug.—Oct. Rare. Holy
Island, Berwick Bay.

SPERMOTHAMNION, ARESCH.

SPERMOTHAMNION TURNERI (Mert.) Aresch.

Phyc. Scand., p. 334.—*Ceramium Turneri*, Mert. in Roth, Cat. Bot., pt. 3, p. 127.

Descr. *Spermiothamnion Turneri*, Farlow, Mar. Alg. New Eng., p. 119.
Callithamnion Turneri, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 179.

Exsicc. " " Wyatt, Alg. Danm., no. 183; Crouan, Alg. Finist., no. 124.

Syn. " " Ag., Syst. Alg. II., p. 100; J. Ag., Spec. Alg. II., p. 23; J. Ag., Epier. p. 17; Johnston, Fl. Berwk. II., p. 241.
Spermiothamnion roseolum, Ag., Pringsheim, Beiträge zur Morphologie der Meeresalgen, t. 4-6.

Herpothamnion Turneri, Næg., Morph. und Syst. Ceram., p. 414.
Wrangelia Turneri, Solier.

Conferva Turneri, Dillw., Conf. t. 100; Eng. Bot., t. 2339.

Hab. Epiphytic on the smaller Algæ at low-water mark. Not uncommon. Berwick Bay, Holy Island, Burnmouth.

F. REPENS (Dillw.) Le Jol.

Liste, p. 109.

Descr. *Callithamnion repens*, Lyngb., Hydr. Dan., p. 128, t. 40.

Fig. " " Lyngb., l.c.; Dillw., Conf. t. 18; Eng. Bot. t. 1608.

Exsicc. *Callithamnion Turneri*, var. variable, Crouan, Alg. Finist., no. 125.

Syn. " " " J. Ag., Spec. Alg. II., p. 24.
Callithamnion variable, Ag., Spec. Alg. II., p. 163; Ktz., Phyc. Gen., p. 372.

Callithamnion repens, Johnston, Fl. Berwk. II., p. 241.

Hab. Epiphytic on *Fastigiaria furcellata*, and other Algæ near low-water mark. May—Oct. Fruit July—Oct. Not uncommon. Berwick Bay, Burnmouth, Scremerston.

FAMILY—**Ceramiaceæ.**

RHODOCHORTON, NÆG.

RHODOCHORTON ROTHII (Eng. Bot.) Næg.

Morph. und Syst. Ceramiaceæ, p. 355.—*Conferva Rothii*, Eng. Bot., t. 1702.

Descr. *Callithamnion Rothii*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 120B.

Thamnidium Rothii, Le Jol., Liste Alg. Cherb., pl. v., figs. 1-2.

- Evsicc.* Callithamnion Rothii, Wyatt, Alg. Danm., no. 188; Crouan, Alg. Finist., no. 120; Le Jol., Alg. Cherb., no. 42.
- Syn.* „ „ Ktz., Spec. Alg., p. 640; Id., Tab. Phyc. xi., t. 62; J. Ag., Spec. Alg. II., p. 17; Id., Epier. p. 13; Johnston, Fl. Berwk. II., p. 241.
- Thamnidium Rothii, Thur. in Le Jol., Liste, p. 111.
- Trentepohlia Rothii, Harv. in Mack., Fl. Hiber., pt. 3, p. 218.
- Ceramium Rothii, Ag., Syst.
- Byssus purpurea, Eng. Bot., t. 192.
- Conferva purpurea, Dillw., t. 43.
- Hab.* Forming velvety patches on rocks from high-water mark to half-tide level. Fruit Jan. to March. Common. Berwick Bay, Greenses, Coves, Sharper Head, Burnmouth, Scremerston.

RHODOCHORTON FLORIDULUM (Dillw.) Næg.

Morph. und Syst. der Ceramiaceæ, p. 358.—Conferva floridula, Dillw., Conf. Suppl., p. 73, t. F.

Descr. Callithamnion floridulum, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 120A.

Thamnidium floridulum, Le Jol., Liste, pl. VI., figs. 1, 2.

Evsicc. Callithamnion floridulum, Wyatt, Alg. Danm., no. 219; Crouan, Alg. Finist., no. 112; Le Jol., Alg. Mar. Cherb., no. 102.

Syn. „ „ J. Ag., Spec. Alg. II., p. 19; Ktz., Spec. Alg., p. 640; J. Ag., Epier. p. 13.

Hab. On sand-covered rocks between tide-marks, usually most plentiful near low-water mark. All the year. Fruit Oct.—Feb. Common. Berwick Bay, and elsewhere along the coast.

RHODOCHORTON INTERMEDIUM, Kjellm.

Alg. Arct. Sea, p. 184, t. 15, fig. 8.—Thamnidium intermedium, Kjellm., Spetsb. Thall. I., p. 28, t. I., fig. x.

Hab. On rocks and Algae between tide-marks. Very rare. Berwick Bay.

RHODOCHORTON SPARSUM (Harv.) Kjellm.

Alg. Arct. Sea, p. 186.—Callithamnion sparsum, Harv. in Hook., Br. Fl. II., p. 348.

Descr. Callithamnion sparsum, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 297.

Syn. „ „ J. G. Ag., Epier., p. 14.

Acrochætium sparsum, Næg., Morph. und Syst. Ceram., p. 414.

Thamnidium sparsum, Kleen.

Trentepohlia sparsa, Harv. in Mack., Fl. Hiber., pt. III., p. 219.

Callithamnion floridulum, Lyngb., Hydr. Dan., p. 130, t. 41 (non Harv., nec Ag.)

Hab. On old stems of Laminaria hyperborea, and L. saccharina, also on Cladophora rupestris. Rare. July—Sept. Berwick Bay.

A small and imperfectly understood species, which grows in scattered tufts on the stems of Laminariæ. The filaments are very sparingly branched, the branches alternate, erect, simple, or with a few scattered, simple ramuli: the articulations twice or thrice as long as broad. I have seen no fruit, and believe it to be very rare. The tetraspores are said to be "sessile mostly axillary."

RHODOCHORTON MEMBRANACEUM, *Magnus*.

Bot. Ergebn. Nordseefahrt, p. 67, taf. II., figs. 7-15.

Descr. et Fig. Rhodochorton membranaceum, *Magnus*, l.c.

Exsicc. " " Hauck, and Richter, Phykoth.

Univers., no. 154.

Syn. " " Hauck, Meeresalg., p. 69.

Hab. In the tubes of *Sertulariæ*, and other Zoophytes. Rare. Berwick Bay. Fruit Jan.—March.

An interesting species forming a sort of membranous lining to the tubes of *Sertulariæ*. The fertile branches often project through the orifices of the polype cells.

ANTITHAMNION (NÆG.) THUR.

ANTITHAMNION PLUMULA (Ellis) *Thur*.

in *Le Jol.*, List Alg. Cherb., p. 112.—*Conferva plumula*,

Ellis, Phil. Trans., vol. 57, t. 18.

Descr. Callithamnion plumula, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 242.

Exsicc. " " *Wyatt*, Alg. Danm., no. 138; *Crouan*, Alg. Finist., no. 129; *Le Jol.*, Alg. Cherb., no. 2.

Syn. Callithamnion plumula, *J. Ag.*, Spec. Alg. II., p. 29; *Id.*, *Epicr.*, p. 24; *Ktz.*, Spec. Alg., p. 647.

Ceramium plumula, *Ag.*, Syn., p. 62.

Pterothamnion plumula, *Nægeli*, Morph. und Syst. Ceram., p. 413.

F. SPINESCENS, *Strömf.*

in *Notarisia*. Anno. III., fasc. 9, pl. 3, fig. 1.

Hab. Occasionally washed ashore, Berwick Bay.

Smaller than the typical form, the pinnæ short, the pinnulæ crowded on the upper margins of the pinnæ, and either few or absent altogether from the under sides, ultimate segments ending in a short spine-like point.

Although my specimens are considerably more than "5 mm." long, they agree fairly well with *Strömfelt's* figure and description.

CALLITHAMNION, LYNGB.

CALLITHAMNION PLUMA (Dillw.) Ag.

Spec. Alg. II., p. 162.—*Conferva pluma*, Dillw., Conf., p. 119, t. F.

Descr. *Callithamnion pluma*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. p. 296.

Ptilothamnion pluma, Bornet et Thuret, Notes Algol., p. XII., and 179, pl. 46.

Exsicc. *Callithamnion pluma*, Crouan, Alg. Finist., no. 126.

Syn. " " J. Ag., Spec. Alg. II., p. 25; *Id.*, Epicr., p. 16; Ktz., Spec. Alg., p. 647; Ktz., Tab. Phyc. XI., t. 82.

Ptilothamnion pluma, Thur., in *Le Jol.*, Liste Alg. Cherb., p. 118.

Herpothamnion pluma, Næg., Morph. und Syst. Ceram., p. 413.

Ceramium pluma, Ag., Syst., p. 132.

Callithamnion plumula, var. *pusillum*, Lyngb., Hydr. Dan., p. 127, t. 39.

Hab. On the stems of *Laminaria hyperborea*. Fruit July and Aug. Very rare. Berwick Bay.

CALLITHAMNION CORYMBOSUM (Eng. Bot.) Lyngb.

Hydr. Dan., p. 125, t. 38.—*Conferva corymbosa*, Eng. Bot., t. 2352.

Descr. *Callithamnion corymbosum*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 272; Bornet et Thuret, Etudes Phycol., pls. 32-35.

Exsicc. " " Wyatt, Alg. Danm., no. 92; Crouan, Alg. Finist., no. 139.

Syn. " " J. Ag., Spec. Alg. II., p. 41; *Id.*, Epicr., p. 40.

Phlebothamnion corymbosum, Ktz., Spec. Alg., p. 657; *Id.*, Tab. Phyc. XII., t. 9, fig. c and d.

Pæcilothamnion corymbosum, Nægeli, Morph. und Syst. Ceramiceæ., p. 411.

Hab. On mud-covered rocks near low-water mark. June—Oct. Very rare. Berwick Bay.

CALLITHAMNION GRANULATUM (Ducluz) Ag.

Spec. Alg. II., p. 177.—*Ceramium granulatum*, Ducluz, Ess., p. 72.

Descr. *Callithamnion spongiosum*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 125.

Exsicc. " " Wyatt, Alg. Danm., no. 93.

Callithamnion granulatum, Crn., Alg. Finist., no. 155; *Le Jol.*, Alg. Mar. Cherb., no. 62; Rabenh., Alg. Eur., no. 1398.

- Syn.* Callithamnion granulatum, *J. Ag.*, Spec. Alg. II., p. 61; *J. Ag.*, Epicr. p. 43.
 Pœcilothamnion granulatum, *Næg.*, Morph. und Syst. Ceram., p. 412.
 Phlebothamnion granulatum, et spongiosum, *Ktz.*, Spec. Alg., p. 658; *Id.*, Tab. Phyc. XII., t. 11, et 13.
Hab. On rocks near low-water mark. Very rare. July and Aug. Sharper Head, Burnmouth.

CALLITHAMNION ROSEUM (Roth) *Harv.*

Phyc. Brit., pl. 230.—Ceramium roseum, *Roth*, Cat. Bot., vol. III., p. 145.

- Descr.* Callithamnion roseum, *Harv.*, l.c.
Fig. " " *Harv.*, l.c.
Exsicc. " " *Wyatt*, Alg. Danm., no. 44; *Le Jol.*, Alg. Mar. Cherb., no. 162; *Crn.*, Alg. Finist., no. 135.
Syn. " " *J. Ag.*, Spec. Alg. II., p. 36; *J. Ag.*, Epicr. p. 39.
 Phlebothamnion roseum, *Ktz.*, Spec. Alg., p. 653.
Hab. On *Cladophora rupestris*, *Ceramium Deslongchampsii*, and other small Algæ, at low-water mark and below. July—Oct. Rare. Estuary of the Tweed.

CALLITHAMNION POLYSPERMUM, *Ag.*

Spec. Alg. II., p. 169.

- Descr.* Callithamnion polyspermum, *Harv.*, Phyc. Brit.
Fig. " " *Harv.*, l.c. pl. 231.
Exsicc. " " *Wyatt*, Alg. Danm., no. 140; *Crn.*, Alg. Finist., no. 147.
Syn. " " *J. Ag.*, Spec. Alg. II., p. 48; *Id.*, Epicr. p. 32.
 Callithamnion Grevillii, *Harv.*, in *Hook.*, Br. Fl. vol. II., p. 345; *Harv.*, Man. 1st Ed., p. 110; *Ktz.*, Spec. Alg., p. 644.
 Callithamnion roseum, *Grev.*, Fl. Edin., p. 311 (non *Harv.*)
 Callithamnion purpurascens, *Johnston*, Fl. Berwk. II., p. 240.
 Phlebothamnion polyspermum, *Ktz.*, Spec. Alg., p. 653; *Id.*, Phyc. Gen., p. 374.
 Ceramium scopulorum, *Chauv.*, Alg. Norm., no. 84.
 Callithamnion scopulorum, *Crouan*, Alg. Finist., no. 146 (non *Ag.*)
Hab. On rocks and Algæ between tide-marks. Fruit May—Aug. Not uncommon. Berwick Bay, Burnmouth, Spittal, Holy Island.

CALLITHAMNION HOOKERI (Dillw.) Ag.

Spec. Alg. II., p. 179.—*Conferva Hookeri*, Dillw., Conf. t. 106.

Descr. *Callithamnion Hookeri*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 279.

Æssicc. „ „ Crouan, Alg. Finist., no. 149.

Callithamnion lanosum, Wyatt, Alg. Danm., no. 139.

Syn. „ „ Harv. in Hook., Br. Fl. II., p. 341.

Callithamnion Hookeri, J. Ag., Spec. Alg. II., p. 51; *Id.*, Epicr. p. 33.

Phlebothamnion Hookeri, Ktz., Spec. Alg., p. 653; *Id.*, Tab. Phyc.

XI., t. 94.

Callithamnion spinosum, Harv. in Hook., Br. Fl. vol. II., p. 345.

Phlebothamnion spinosum, Ktz., Spec. Alg., p. 653.

Ceramium Hookeri, Ag., Syn. p. 27; *Hook.*, Fl. Scot., pt. 2, p. 85.

Hab. On *Cladostephus spongiosus*, and other small Algæ, near low-water mark. Frequent. Summer and Autumn. Berwick Bay, Sharper Head, Burnmouth, Spittal, Scremerston.

CALLITHAMNION BRODIAEI, Harv.

in Hook., Br. Fl. vol. 2, p. 105.

Descr. *Callithamnion Brodiaei*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 129.

Æssicc. „ „ Wyatt, Alg. Danm., no. 184; Crouan,

Alg. Finist., no. 154.

**Syn.* „ „ J. Ag., Spec. Alg. II., p. 57; *Id.*, Epicr., p. 34.

Phlebothamnion Brodiaei, Ktz., Spec. Alg. 653.

Pœcilothamnion Brodiaei, Naeg., Morph. und Syst. Ceram., p. 411.

Hab. “Berwick Bay,” Mrs. Gatty.

I have never met with this species at Berwick, and the specimens marked “*Callithamnion Brodiaei*” in the late Dr. Johnston’s Herbarium, seem to me to belong rather to *Callithamnion Hookeri*.

CALLITHAMNION ARBUSCULA (Dillw.) Lyngb.

Hydr. Dan., p. 123.—*Conferva arbuscula*, R. Br.; Dillw., t. 85 (excl. t. G.)

Descr. *Callithamnion arbuscula*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 274.

Syn. „ „ J. Ag., Spec. Alg. II., p. 60; *Id.*, Epicr., p. 37.

Phlebothamnion arbuscula, Ktz., Spec. Alg., p. 656.

Dasya spongiosa, Ag., Spec. Alg. II., p. 121.

Asperocaulon arbuscula, Grev., Fl. Edin., p. 307; Johnston, Fl. Berw. II., p. 235.

Hutchinsia arbuscula, Hook., Fl. Scot. II., p. 89.

Hab. On rocks and shells near low-water mark, also on the vertical faces of cliffs exposed to the full shock of the incoming waves. Fruit May—Aug. Frequent. Berwick Bay, Sharper Head, Burnmouth, Holy Island.

GRIFFITHSIA, Ag.

GRIFFITHSIA SETACEA (Ellis) Ag.

Syn., p. 28.—*Conferva setacea*, Ellis, Phil. Trans., vol. 57, t. 18, fig. e.

Descr. Griffithsia setacea, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 184.

Exsicc. " " Wyatt, Alg. Danm., no. 137; Crouan, Alg. Finist., no. 159; Le Jol., Alg. Mar. Cherb., no. 53.

Syn. " " J. G. Ag., Spec. Alg. II., p. 84; Id., Epicr., p. 69; Ktz., Spec. Alg., p. 660; Johnston, Fl. Berw. II., p. 242.

Hab. On the perpendicular sides of deep rock pools between tide-marks. Fruit April to June. Frequent. Berwick Bay, Sharper Head, Burnmouth, Scremerston.

PTILOTA, Ag.

PTILOTA PLUMOSA (Linn.) Ag.

Syn. Alg., p. 39.—*Fucus plumosus*, Linn., Mant., p. 134.

Descr. Ptilota plumosa, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 80.

Syn. " " J. Ag., Spec. Alg. II., p. 95; Id., Epicr., p. 75; Ktz., Phyc. Gen., p. 378; Id., Tab. Phyc. XII., t. 54.

Ceramium plumosum, Roth, Cat. Bot. III., p. 133; Ag., Dist. p. 17.

Plocamium plumosum, Lamour., Ess., p. 50; Duby, Bot. Gal. II., p. 949; Johnston, Fl. Berw., vol. II., p. 232.

Hab. On the stems of *Laminaria hyperborea*. Fruit nearly all the year. Very common. Berwick Bay, Sharper Head, Burnmouth, Spittal, Scremerston, Holy Island.

At Berwick this species is usually found with fruit in the winter months, and specimens gathered in January and February are nearly always fruited. Mr Traill, however, in his various lists, gives June, July, and August as the best months for fruit in the Firth of Forth.

PTILOTA ELEGANS, *Bonnem.*

Hydr. loc., p. 22.

Descr. *Ptilota elegans*, *J. Ag.*, Spec. Alg. II., p. 94.*Fig.* " " *Ktz.*, Tab. Phyc. XII., t. 56.*Ptilota sericea*, *Harv.*, Phyc. Brit. pl. 191.*Exsicc.* *Ptilota plumosa*, b. capillaris, *Wyatt*, Alg. Danm., no. 77." " g. tenuissima, *Hohenack*, Alg. Mar. Sicc., no. 129.*Ptilota elegans*, *Crouan*, Alg. Finist., no. 162 ; *Le Jol.*, Alg. Mar. Cherb., no. 17.*Syn.* " " *Ktz.*, Spec. Alg., p. 670.*Ptilota plumosa*, g. tenuissima, *Ag.*, Syst., p. 195 ; *Ag.*, Spec. Alg. I., p. 386.*Plocamium plumosum*, var. b. *Duby*, Bot. Gal. II.*Hab.* On rocks between tide-marks usually near low-water, and in caves. Fruit Jan. to June. Common. Sharper Head, Burnmouth, Holy Island, in the caves north of Dodd's Well.

This is the variety of *Ptilota plumosa*, "with narrow, flaccid fronds and jointed ramuli" mentioned by Johnston in his Flora of Berwick. As he remarks it is "never infested and disfigured with *Flustræ*, as the parasitical plants very commonly are."

GLÆOSIPHONIA, *CARMICH.*GLÆOSIPHONIA CAPILLARIS (*Huds.*) *Carm.*

Alg. Appin., MS. ; *Harv.*, Phyc. Brit.—*Fucus capillaris*, *Huds.*, Fl. Ang., p. 591.

Descr. *Gloiosiphonia capillaris*, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pl. 57.*Exsicc.* " " *Le Jol.*, Alg. Mar. Cherb., no. 210 ; *Crm.*, Alg. Finist., no. 182.*Syn.* " " *J. Ag.*, Spec. Alg. II., p. 161 ; *Id.*, *Epicr.* p. 116 ; *Ktz.*, Spec. Alg., p. 714 ; *Berk.*, Glean. of Br. Alg., t. 17, f. 3.*Mesogloia capillaris*, *Ag.*, Syst., p. 51 ; *Harv.*, in *Hook.*, Br. Fl. II., p. 386.*Gigartina capillaris*, *Lamour.*, Ess., p. 49.*Gigartina lubrica*, *Lyngb.*, Hydr. Dan., p. 45, t. 12 (sec. *Ag.*)*Dumontia capillaris*, *Crm.* in *Desmaz.*, Exsicc., no. 815.*Hab.* On rocks and stones at extreme low-water mark and below. Fruit July and Aug. Very rare. Burnmouth, Holy Island.

With us this curious species is most uncertain in its appearance, and although it may be abundant one year, it not infrequently happens that not a single specimen is to be found the next. It is more frequently found amongst the rejectamenta washed ashore from deep water than growing.

CERAMIUM, LYNGB.

CERAMIUM RUBRUM (Huds.) Ag.

Syn. p. 60.—*Conferva rubra*, Huds., Fl. Ang., p. 600.

Descr. *Ceramium rubrum*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 181.

Exsicc. „ „ Wyatt, Alg. Danm., no. 42.

F. PEDICELLATUM, J. Ag.

Spec. Alg. II., p. 127.

Syn. *Ceramium rubrum*, Harv., l.c.; Lloyd, Alg. de l'Onest., no. 184.

F. PROLIFERUM, J. Ag.

l.c.; *Id.*, Epier. p. 100; Harv., Ner. Bor. Am., pt. 2, p. 214.

Syn. *Ceramium botryocarpum*, Griff., in Harv., Phyc. Brit., pl. 215.

F. CORYMBIFERUM, J. Ag., l.c.

Hab. On rocks, stones, and Algæ between tide-marks. All the year.

Fruit May—Aug. Very common everywhere along the coast.

F. proliferum, rare. Berwick Bay.

CERAMIUM DIAPHANUM (Lightf.) Roth.

Cat. Bot. III., p. 154.—*Conferva diaphana*, Lightf., Fl. Scot., p. 996.

Descr. *Ceramium diaphanum*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 193.

Exsicc. „ „ Wyatt, Alg. Danm., no. 87.

Ceramium circinnatum, Crouan, Alg. Finist., no. 172 (excl. Syn.)

Syn. *Ceramium diaphanum*, J. Ag., Spec. Alg. II., p. 125; *Id.*, Epier., p. 98.

Hormoceras pulchellum, Ktz., Spec. Alg., p. 676; *Id.*, Phyc. Gen., p. 378.

Hab. On rocks and Algæ between tide-marks. Fruit July—Sept. Not uncommon. Berwick Bay, Burnmouth, Holy Island.

CERAMIUM STRICTUM, Harv.

Phyc. Brit., p. 334.

Descr. et Fig. *Ceramium strictum*, Harv., l.c.

Exsicc. „ „ Crouan, Alg. Finist., no. 170.

Syn. „ „ J. Ag., Spec. Alg. II., p. 123; *Id.*, Epier., p. 97.

Gongroceras strictum, Ktz., Spec. Alg., p. 678; *Id.*, Tab. Phyc. XII., t. 78.

Hab. On muddy rocks between tide-marks, usually near low-water mark; also epiphytic on the smaller Algæ. May—July. Rare. Burnmouth, Berwick, Scremerston, and elsewhere along the coast.

CERAMIIUM DESLONGCHAMPSII, *Chauv.*

Alg. Norm., no. 85.

Descr. Ceramium Deslongchampsii, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pl. 219.*Exsicc.* " " *Wyatt*, Alg. Danm., no. 218; *Crouan*,

Alg. Finist., no. 169.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 122; *Id.*,
Epier., p. 97.*Gongroceras* Deslongchampsii, et *Agardhianum*, *Ktz.*, Spec. Alg.,
p. 677; *Id.*, Tab. Phyc. XII., t. 77.*Hab.* On rocks and stones between tide-marks, usually near low-water
mark, also epiphytic on the smaller Algæ. Fruit June—Sept.
Rare. Estuary of the Tweed.CERAMIIUM FLABELLIGERUM, *J. Ag.*

Advers. 27.

Descr. Ceramium flabelligerum, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pl. 144.*Exsicc.* " " *Crouan*, Alg. Finist., no. 179; *Le Jol.*,
Alg. Mar. Cherb., no. 64.*Syn.* " " *J. Ag.*, Spec. Alg. II., p. 134; *Id.*, Epier. p.
103; *Ktz.*, Spec. Alg., p. 688.*Hab.* On the smaller Algæ between tide-marks, also on rocks. Fruit
June—Sept. Rare. Rocks north of Dodd's Well, Burnmouth,
Berwick Bay.CERAMIIUM ACANTHONOTUM, *Carm.*Alg. Appin. ined. *Harv.*, Phyc. Brit.*Descr.* Ceramium acanthonotum, *Harv.*, l.c.*Fig.* " " *Harv.*, l.c. pl. 140.*Exsicc.* " " *Le Jol.*, Alg. Mar. Cherb.; no. 22; *Crm.*,
Alg. Finist., no. 177.*Syn.* " " *J. Ag.*, Spec. Alg. II., p. 132; *Id.*, Epier.
p. 103.*Acanthoceras* Shuttleworthianum, *Ktz.*, Spec. Alg., p. 684; *Id.*,
Tab. Phyc. XII., t. 96.*Ceramium ciliatum*, var. *acanthonotum*, *Harv.* in *Hook.*, Br. Fl. II.,
p. 336; *Harv.*, Man. 1st ed., p. 100.*Ceramium ciliatum*, *Johnston*, Fl. Berwk. II., p. 240 (non *Ellis*.)*Hab.* On exposed rocks near low-water mark, and in caves. Fruit Jan.
—May. Not uncommon. Berwick Bay, Sharper Head, Spittal,
Scremerston, Holy Island.

FAMILY—**Cryptonemiaceæ.**

SARCOPHYLLIS (KtZ.) J. G. Ag.

SARCOPHYLLIS EDULIS (Stack.) J. Ag.

Epicrisis Flor., p. 265.—*Fucus edulis*, Stackhouse, Ner. Brit. p. 57, t. 12.

Descr. *Iridæa edulis*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 97.

Essicc. „ „ Wyatt, Alg. Danm., no. 78.

Schizymenia edulis, Le Jol., Alg. Mar. Cherb., no. 137; Crouan, Alg. Finist., no. 184.

Syn. „ „ J. Ag., Spec. Alg. II., p. 172; Kjellm., Spetsb. Thall. I., p. 23.

Halymenia edulis, Ag., Spec. Alg. I., p. 202; Hook., Fl. Scot., pt. 2, p. 107; Johnston, Fl. Berwk. vol. II., p. 227.

Hab. On rocks near low-water mark and below. Not uncommon. Fruit Jan.—Feb. Berwick Bay, Burnmouth, Scremerston, Holy Island.

The fronds of this species impart to fresh-water a pink colour, and the “Rev. W. Gregor obtained a fine lake from an infusion with the assistance of alum.”* It seems probable that the rouge used by the ladies of ancient Greece and Rome was obtained from this species and other *Rhodophyceæ* with broad flat fronds, such as *Rhodymenia palmata*, *Schizymenia Dubyi*, *Calliblepharis ciliata*, *Calliblepharis jubata*, *Callophyllis laciniata*, etc., which are abundant in the Mediterranean. Most modern writers on classical antiquities, however, state that *Orchella* weed † was the plant from which this rouge was obtained, but had that been so one would have expected the word *βέβον* not *φύκος* ‡ to have been used. Moreover it is hardly probable that the ladies would have used a *claret* colour to improve their complexions. || Dr. R. G. Latham § seems to think that the word *Fucus* came to denote a red or purple colour, not because such a dye was obtained from sea-

* Greville.

† *Rocella tinctoria*, D.C., or *Rocella fuciformis*, Ach.

‡ *βέβον* and *φύκος* like *Alga* and *Fucus* seem to have differed only in size.

|| T. Holyoke in his Dictionary published in 1677 defines *Fucus* thus: “Genus ALGÆ quo infectores utuntur, et mulieres exalbidæ genarum colorem purpureum, roseumque mentiuntur.”

§ R. G. Latham, M.D. A Dictionary of the English Language.

weed (*Fucus*), but because "the tissue which had to be coloured with the purple of the *murex* was previously dipped in a ley of them." However that may be, the word passed into English, and was used by our early writers to designate cosmetic figments in general,* and frequent mention is made in the works of the Elizabethan Dramatists of the *Fucus* used by ladies to paint their faces.

FASTIGIARIA, STACKH.

FASTIGIARIA FURCELLATA (Lin.) Stack.

Tentam., p. 91 (1809).—*Fucus fastigiatus*, Linn., Spec. Plant. 2, p. 1162.

Descr. *Furcellaria fastigiata*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 94 et 257 A.

Exsicc. " " Wyatt, Alg. Danm., no. 106; Crouan, Alg. Finist., no. 187; Rabenh., Alg. Europ., no. 1257.

Syn. " " Lamour., Ess. Thalass., p. 26 (1813); Ktz., Spec. Alg., p. 749; J. Ag., Spec. Alg. II., p. 196; J. Ag., Epicr. p. 241.

Fastigiaria furcellata, Le Jol., Liste Alg. Mar. Cherb., p. 124.

Furcellaria lumbricalis, Lamour., Ess. p. 26; Hook., Fl. Scot. II., p. 97; Johnston, Fl. Berwk. II., p. 223.

Fucus furcellatus, Lightf., Fl. Scot., p. 930-2.

Fucus lumbricalis, Eng. Bot., t. 824.

Hab. On rocks and stones in pools near low-water mark. Fruit Oct.—Feb. Common everywhere along the coast.

* "With all his waters, powders, fucuses to make thy lovely corps sophisticate." Beaumont and Fletcher, Woman Hater, III., 3.

Liv. "How do I look to-day?"

Eub. "Excellent clear, believe it. 'This same *fucus* was well laid on.'"

Ben Jonson, Sejanus II., 1.

"She and I now

Are on a project for the fact and venting of a new
kinde of fucus to serve the kingdom."

Ben Jonson, "The Devil is an Ass."

"They make fukes to paint and embellish the eye-brows."

P. Holland's Pliny, LXXIII. c. 4, III. 1.

DUMONTIA, LAMOUR.

DUMONTIA FILIFORMIS (Fl. Dan.) Grev.

Alg. Brit., p. 165, t. 17.—*Ulva filiformis*, *Fl. Dan.*, t. 1480, f. 2.

Descr. *Dumontia filiformis*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 59.

Exsicc. " " *Wyatt*, Alg. Danm., no. 31; *Crouan*, Alg. Finist., no. 208; *Le Jol.*, Alg. Mar. Cherb., no. 5.

Syn. " " *Ktz.*, Spec. Alg., p. 718; *J. Ag.*, Spec. Alg. II., p. 349; *Id.*, Epicr. p. 257; *Ktz.*, Tab. Phyc. XVI., t. 81; *Johnston*, Fl. Berwk. II., p. 246.

Halymenia filiformis, *Ag.*, Spec. Alg. I., p. 214; *Ag.*, Syst. p. 245.

Dumontia incrassata, *Lamour.*, Ess. p. 45.

Ulva purpurascens, *Eng. Bot.*, t. 641.

Hab. On rocks and stones in pools between tide-marks usually near half-tide level. March—Oct. Common along the whole coast.

F. CRISPATA, Grev.

Alg. Brit., p. 165.

Syn. *Dumontia filiformis*, f. *crispata*, *J. Ag.*, Spec. Alg. II., p. 350; *Harv.*, l.c.; *Ktz.*, Spec. Alg., p. 719.

Hab. In pools near high-water mark where fresh-water enters the sea. Near Dodd's Well. Rare.

FAMILY—**Gigartinaceæ.**

CHONDRUS, STACKH.

(CARRAGEEN, IRISH MOSS.)

CHONDRUS CRISPUS (Linn.) Lyngb.

Hydr. Dan., p. 15.—*Fucus crispus*, *Linn.*, Mant., p. 134.

Descr. *Chondrus crispus*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 63.

Exsicc. " " *Wyatt*, Alg. Danm., no. 118 and 119; *Crouan*, Alg. Finist., no. 189; *Le Jol.*, Alg. Mar. Cherb., no. 164 and 224.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 246; *Id.*, Epicr. p. 178; *Ktz.*, Spec. Alg., p. 735; *Johnston*, Fl. Berwk. II., p. 230.

Sphærococcus crispus, *Ag.*, Spec. Alg. I., p. 256; *Hook.*, Fl. Scot. II., p. 102; *Grev.*, Fl. Edin., p. 294.

Fucus stellatus, *Stack.*, Ner. Brit., p. 53, t. 12.

Fucus laceratus, *Stack.*, Ner. Brit., p. 50, t. 11.

Fucus patens, *Good. et Woodw.*, in *Linn. Trans.* III., p. 173.

Hab. On rocks and stones from half-tide level to low-water mark. All the year. Fruit Nov.—May. Very common all along the coast.

GIGARTINA, LAMOUR.

GIGARTINA MAMILLOSA (Good. et Woodw.) *J. Ag.*

Alg. Medit., p. 104.—*Fucus mamillosus*, *Good. et Woodw.*, in
Linn. Trans. III., p. 174.

Descr. *Gigartina mamillosa*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 199.

Exsicc. „ „ *Crouan*, Alg. Finist., no. 193; *Le Jol.*, Alg.
Mar. Cherb., no. 9; *Rabenh.*, Alg. Europ., no. 1511.

Chondrus mamillosus, *Wyatt*, Alg. Danm., no. 117.

Syn. „ „ *Grev.*, Alg. Brit., p. 127; *Hook.*, Br. Fl. II.,
p. 302; *Johnston*, Fl. Berwk., p. 230.

Gigartina mamillosa, *J. Ag.*, Spec. Alg. II., p. 273; *Id.*, Epier. p.
199.

Sphærococcus mamillosus, *Ag.*, *Syn.* p. 29; *Hook.*, Fl. Scot. II., p.
1102.

Mastocarpus mamillosus, *Ktz.*, Spec. Alg., p. 733; *Id.*, Phyc. Gen.
p. 398.

Fucus ceranoides, var. *Lightf.*, Fl. Scot., p. 916.

Hab. On rocks and stones from half-tide level to low-water mark.
Common along the whole coast. All the year. Fruit Nov.—
March.

CALLOPHYLLIS, Ktz.

CALLOPHYLLIS LACINIATA (Huds.) *Ktz.*

Phyc. Gen., p. 401.—*Fucus laciniatus*, *Huds.*, Fl. Angl., p.
579.

Descr. *Rhodymenia laciniata*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 121.

Exsicc. „ „ *Wyatt*, Alg. Danm., no. 17.

Syn. „ „ *Grev.*, Alg. Brit., p. 86.

Callophyllis laciniata, *Ktz.*, Spec. Alg., p. 744; *J. Ag.*, Spec. Alg.
II., p. 299; *Id.*, Epier. p. 231; *Crouan*, Alg. Finist., no. 196.

Sphærococcus laciniatus, *Ag.*, Syst. p. 230; *Ag.*, Spec. Alg. I., p.
297; *Hook.*, Fl. Scot. II., p. 103.

Halymenia laciniata, *Duby*, Bot. Gall. II., p. 945; *Johnston*, Fl.
Berwk. II., p. 229.

Halymenia ciliaris, *Lamour.*, Ess. p. 37; *Desmaz.*, Exsicc., no. 507.

Hab. On rocks near low-water mark and below, also on the stems of
Laminaria hyperborea. All the year. Fruit May—Sept.
Frequently cast ashore from deep water, but very seldom seen
growing. Berwick, Burnmouth, Scremerston, Holy Island, and
elsewhere along the coast.

AHNFELTIA, FRIES.

AHNFELTIA PLICATA (Huds.) Fries.

Fl. Scand., p. 310.—*Fucus plicatus*, Huds., Fl. Angl., p. 589.

Descr. *Gymnogongrus plicatus*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 288.

Exsicc. *Ahnfeltia plicata*, Le Jol., Alg. Mar. Cherb., no. 141; Crn., Alg. Finist., no. 199; Hohenacker, Alg. Mar. Sicc., no. 191.

Ahnfeldtia plicata, Aresch., Alg. Scand. Exsicc., no. 77.

Gigartina plicata, Wyatt, Alg. Danm., no. 116; Rabenh., Alg. Europ., no. 1258.

Syn. " " Lamour., Ess. p. 48; Grev., Alg. Brit., p. 150; Johnston, Fl. Berwk. II., p. 234.

Ahnfeltia plicata, J. Ag., Spec. Alg. II., p. 311; Id., Epicr. p. 206.

Gymnogongrus plicatus, Ktz., Spec. Alg., p. 789.

Sphærococcus plicatus, Ag., Spec. Alg. I., p. 313; Ag., Syst. p. 234.

Hab. In sandy pools from half-tide level to low-water mark and below. All the year. Common along the whole coast.

PHYLLOPHORA, GREV.

PHYLLOPHORA RUBENS (Linn.) Grev.

Alg. Brit., p. 135, t. 15.—*Fucus rubens*, Linn., Spec. Plant., p. 1162.

Descr. *Phyllophora rubens*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 131.

Exsicc. " " Wyatt, Alg. Danm., no. 29; Croun, Alg. Finist., no. 203; Le Jol., Alg. Mar. Cherb., no. 134.

Syn. " " Ktz., Spec. Alg., p. 791; J. Ag., Spec. Alg. II., p. 331; Id., Epicr. p. 217.

Sphærococcus rubens, Ag., Spec. Alg. I., p. 237; Ag., Syst. p. 213.

Chondrus rubens, Lyngb., Hydr. Dan., p. 18.

Halymenia rubens, Duby, Bot. Gall. II., p. 943; Johnston, Fl. Berwk. II., p. 227.

Fucus rubens, Good. et Woodw., in Linn. Trans. III., p. 165; Eng. Bot. t. 1053.

Hab. On the sides of deep, shady rock pools at low-water mark and below. All the year. Fruit Nov.—March. Not uncommon. At the Coves, Sharper Head, Burnmouth, Holy Island, and elsewhere.

This and several other Algæ such as *Odonthalia dentata*, *Delesseria sinuosa*, *Hydrolapathum sanguineum*, *Laminaria digitata*, etc., which are usually found near low-water mark, grow in profusion on the shady sides of the deep pools in the caves to the north of Sharper Head, especially in the caves known as the Singing Coves.

PHYLLOPHORA MEMBRANIFOLIA (Good. et Woodw.) *J. Ag.*

Alg. Medit., p. 93.—*Fucus membranifolius*, *Good. et Woodw.*, in Linn. Trans. III., p. 120, t. 16.

Descr. *Phyllophora membranifolia*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 163.

Exsicc. " " *Crouan*, Alg. Finist., no. 206; *Le Jol.*, Alg. Mar. Cherb., no. 34.

Chondrus membranifolius, *Wyatt*, Alg. Danm., no. 76.

Syn. " " *Grev.*, Alg. Brit., p. 131; *Hook.*, Br. Fl. II., p. 302; *Harv.*, Man. 1st ed., p. 78.

Phyllophora membranifolia, *J. Ag.*, Spec. Alg. II., p. 334; *Id.*, *Epicr.* p. 218.

Sphærococcus membranifolius, *Ag.*, Syn. p. 26; *Hook.*, Fl. Scot. II., p. 102.

Halymenia membranifolia, *Lamour.*, Ess; *Duby*, Bot. Gall. II., p. 943; *Johnston*, Fl. Berwk. II., p. 227.

Phyllotyllus membranifolius, *Ktz.*, Spec. Alg., p. 790; *Le Jol.*, Liste Alg. Mar. Cherb., p. 129.

Hab. On rocks and stones near low-water mark. All the year. Fruit Winter. Not uncommon. Berwick Bay, Sharper Head, Burnmouth, Holy Island.

PHYLLOPHORA BRODIAEI (Turn.) *J. Ag.*

Alg. Medit., p. 93.—*Fucus Brodiaei*, *Turn.*, Hist. Fuc. II., p. 1.

Descr. *Phyllophora Brodiaei*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 20.

Syn. " " *J. Ag.*, *Epicr.* p. 216.

Sphærococcus Brodiaei, *Ag.*, Syn. p. 27; *Hook.*, Fl. Scot. II., p. 103; *Grev.*, Fl. Edin., p. 295.

Chondrus Brodiaei, *Grev.*, Alg. Brit., p. 133; *Hook.*, Br. Fl. II., p. 303.

Halymenia Brodiaei, *Duby*, Bot. Gall. II., p. 942; *Johnston*, Fl. Berwk. II., p. 227.

Hab. In sandy pools at low-water mark and below. All the year. Fruit Winter. Rare. Berwick Bay, Greenses, Burnmouth.

PHYLLOPHORA TRAILLII, *Holmes*, *Mscr.*

Traill, Monogr. Alg. Firth Forth, p. 13 (sine descrip.) *P. nana*, 1-1½ cm. alta, stipite brevi, filiformi, tereti, simplice, vel rarius ramoso; laminis, membranaceis, oblongis vel cuneatis, integris vel furcatis; marginibus laminarum sæpe fimbriatis minutis foliis; cystocarpis immersis in sporophyllis minutis marginalibus; tetrasporangiis ignotis; Tab. Nost. XI., figs. 6-11.

Hab. On shady rocks near low-water mark, and under projecting ledges of rock in caves. All the year. Fruit Jan. and Feb. Rare. Berwick Bay, Sharper Head, Burnmouth, Holy Island.

A small species which might, at first sight, be mistaken for a small form of *Rhodymenia nicænsis*, from which it differs in the disposition of the cystocarps, which are entirely immersed in the tissue of special marginal leaflets, whereas in *Rhodymenia nicænsis* they are scattered, and sessile either on the margin, or on the blade itself, in which case they are prominent on one side only of the frond. From *Phyllophora palmettoides* it is distinguished by the absence of the widely expanded radical disc.

The present species is very small, seldom being more than one or one and a half centimetres high. The filiform stems are either simple or branched, and expand into oblong or wedge-shaped laminæ which are either simple or slightly forked, sometimes more or less irregular in outline, and usually fringed with minute, almost colourless leaflets. The cystocarps are entirely immersed in special marginal leaflets, the spores numerous and arranged in irregular masses, the nemathecia are as yet unknown.

The plant grows under overhanging ledges of rock, usually very much in the shade, and often in such narrow crevices that it is difficult to see it, and still more difficult to reach it. The fronds grow singly and are sparsely scattered on the rock, often mixed with sponges, &c.

The species is named in honour of its discoverer, Mr G. W. Traill of Edinburgh, who has done so much to increase our knowledge of the marine Algæ of the Firth of Forth.

CYSTOCLONIUM, Ktz.

CYSTOCLONIUM PURPURASCENS (Huds.) Ktz.

Phyc. Gen., p. 404.—*Fucus purpurascens*, Huds., Fl. Angl., p. 589.

Descr. *Hypnea purpurascens*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 116.

Essicc. *Cystoclonium* " Crouan, Alg. Finist., no. 198; *Le Jol.*, Alg. Mar. Cherb., no. 226.

Gigartina purpurascens, Wyatt, Alg. Danm., no. 74.

Syn. " " Lamour., Ess., p. 136; *Lyngb.*, Hydr. Dan., p. 46, t. 12; *Duby*, Bot. Gall. II., p. 952; *Johnston*, Fl. Berw. II., p. 234.

Sparococcus purpurascens, Ag., Spec. Alg. I., p. 318; *Ag.*, Syst., 236.

Gracilaria purpurascens, Grev., Alg. Brit., p. 122.

Cystoclonium purpurascens, J. Ag., Spec. Alg. II., p. 307; *Id.*, Epicr., p. 239; *Ktz.*, Spec. Alg., p. 756.

Hab. In pools near low-water mark. Fruit June—Oct. Not uncommon. Berwick Bay, Burnmouth, Holy Island.

FAMILY—**Rhodymeniaceæ.**

CHYLOCLADIA, GREV.

CHYLOCLADIA ARTICULATA (*Lightf.*) Grev.

in *Hook.*, Br. Fl. II., p. 298.—*Fucus articulatus*, *Lightf.*, Fl. Scot., p. 959 (1777).

Descr. Chylocladia articulata, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 283.

Exsicc. „ „ *Wyatt*, Alg. Danm., no. 73.

Lomentaria articulata, *Crouan*, Alg. Finist., no. 274; *Le Jol.*, Alg. Mar. Cherb., no. 31; *Hohenack*, Alg. Mar. Sicc., no. 135.

Syn. „ „ *Ktz.*, Spec. Alg., p. 863; *J. Ag.*, Spec. Alg. II., p. 727; *Lyngb.*, Hydr. Dan., p. 101, pl. 30; *Johnston*, Fl. Berw. II., p. 233.

Chondria articulata, *Ag.*, Spec. Alg. I., p. 357; *Hook.*, Fl. Scot. II., p. 106.

Chylocladia articulata, *J. Ag.*, Epicr., p. 301; *Hauck*, Meeresalg.

Gastroidium articulatum, *Grev.*, Alg. Brit., p. 120.

Ulva articulata, *Huds.*, Fl. Angl., p. 569 (1798).

Hab. Near low-water mark usually under projecting ledges of rock, also on Algæ. Fruit May—Oct. Berwick Bay, Sharper Head, Burnmouth, Scremerston, Holy Island.

CHYLOCLADIA CLAVELLOSA (*Turn.*) Grev.

in *Hook.*, Br. Fl. II., p. 297.—*Fucus clavellus*, *Turn.*, in Linn. Trans. VI., p. 133, t. 9.

Descr. Chrysomenia clavellosa, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 114.

Exsicc. Chylocladia clavellosa, *Wyatt*, Alg. Danm., no. 23; *Crouan*, Alg. Finist., no. 210.

Syn. „ „ *J. Ag.*, Spec. Alg. II., p. 366; *Id.*, Epicr., p. 297; *Hauck.*, Meeresalg.

Lomentaria clavellosa, *Le Jol.*, Alg. Mar. Cherb., no. 172; *Id.*, Liste, p. 132; *Johnston*, Fl. Berw. II., p. 233.

Chondria clavellosa, *Ag.*, Spec. Alg. I., p. 353; *Ag.*, Syst., p. 206; *Hook.*, Fl. Scot., pt. 2, p. 105.

Chrysomenia clavellosa, *J. Ag.*, Alg. Medit., p. 107; *Harv*, Man., p. 100.

Chondrothamnion clavellusum, *Ktz.*, Spec. Alg., p. 859.

Hab. On rocks and Algæ at low-water mark and below. Fruit July and Aug. Not uncommon. Berwick Bay.

CHYLOCLADIA ROSEA, *Harv.*

Ner. Bor. Am., part II., p. 186.

Descr. Chrysymenia rosea, var. Orcadensis, *Harv.*, Phyc. Brit.*Fig.* " " " *Harv.*, l.c. pl. 301 et 358A.*Exsicc.* Chylocladia rosea, *Holmes*, Alg. Brit. Rar. Exsicc., no. 77.*Syn.* " " *J. Ag.*, *Epicr.*, p. 298.Chrysymenia Orcadensis, *Harv.*, *Man.*, p. 100.Lomentaria rosea, *Thuret*, in *Le Jol.*, Liste Alg. Mar. Cherb., p. 131; *Farlow*, Mar. Alg. New Eng., p. 155.*Hab.* Under projecting ledges of rock near low-water mark and on the stems and roots of *Laminaria hyperborea*. Very rare. Winter: Berwick Bay, Sharper Head.RHODYMENIA (Grev.) *J. Ag.*RHODYMENIA PALMATA (Linn.) *Grev.*Alg. Brit., p. 93.—*Fucus palmatus*, *Linn.*, Sp. Pl., p. 1162 (DULSE.)*Descr.* Rhodymenia palmata, *Harv.*, Phyc. Brit.*Fig.* " " *Harv.*, l.c. pls. 217-218.*Exsicc.* " " *Wyatt*, Alg. Danm., no. 110; *Crouan*, Alg. Mar. Finist., no. 211; *Le Jol.*, Alg. Cherb., no. 157.*Syn.* " " *J. Ag.*, Spec. Alg. II., p. 376; *Id.*, *Epicr.*, 329; Ann. Sc. Nat. vol. III., Ser. 4, pl. 3, fig. 8.Sphærococcus palmatus, *Kütz.*, Phyc. Gen., p. 409, t. 63, fig. 1; *Kütz.*, Spec. Alg., p. 781.Halymenia palmata, *Ag.*, *Syn.*, p. 55; *Ag.*, Spec. Alg. I., p. 204; *Johnston*, Fl. Berw. II., p. 228.*Hab.* On rocks near low-water mark, and also on Algae especially the stems of *Laminaria hyperborea*. Fruit Nov.—March. Greenses, Berwick Bay, Burnmouth, &c.

The following are the most marked varieties which occur at Berwick.

F. TYPICA.

var. a. nuda; *Kjellman*, Alg. Arct. Sea, p. 147.var. b. marginifera, *Harv.*, Phyc. Brit., pl. 217.—R. palmata, f. typica, b. marginifera, *Kjellm.*, l.c.*Hab.* Common on stems of *Laminaria*.F. SARNIENSIS (Mert.) *Grev.*l.c.; *J. Ag.* l.c., *Harv.*, l.c.Sphærococcus Sarniensis, *Kütz.*, Spec. Alg., p. 779.*Hab.* At the Coves. Rare. Usually very small, seldom more than quarter of an inch long.

F. SOBOLIFERA (Fl. Dan.) *J. Ag.*, Spec. Alg.

Hab. On rocks and Algæ. Not uncommon.

Dr. Johnston quotes from Ray: "Hunc Hiberni Scotique apud quos copiose invenitur, studiose exsiccatum et convolutum assidue in ore habent et masticant." Adding "The less agreeable tobacco has supplanted this use of dulse, which, however, in a raw state, is still occasionally eaten by the common people, from a belief of its being a sweetener of the blood, and a remedy for scorbutic complaints." With us, little or no dulse is now eaten, and it does not seem at all probable that its use will ever again become popular, for to most persons its taste is anything but agreeable. In Jamieson's Scottish Dictionary, I find the following derivation of the word "Dulse," the Gaelic form of which is "Duillisg," a word said to be "compounded of *Duille* a leaf and *uisge* water; literally the 'leaf of the water.'"

PLOCAMIUM (LAMOUR.) *Lyngb.*PLOCAMIUM COCCINEUM (Huds.) *Lyngb.*

Hydr. Dan., p. 39, t. 9.—*Fucus coccineus*, *Huds.*, Fl. Angl., p. 586.

Descr. *Plocamium coccineum*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 44.

Exsicc. " " *Wyatt*, Alg. Danm., no. 20; *Crouan*, Alg.

Finist., no. 218; *Le Jol.*, Alg. Mar. Cherb., nos. 195 et 217.

Syn. " " *Ktz.*, Spec. Alg., p. 883; *J. Ag.*, Spec. Alg.

II., p. 395; *Id.*, *Epier.* p. 339; *Johnston*, Fl. Berwk. II., p. 232.

Delesseria Plocamium, *Ag.*, Syst. p. 250; *Ag.*, Spec. Alg. I., p. 180.

Delesseria coccinea, *Ag.*, Syn. p. 14; *Hook.*, Fl. Scot. II., p. 101.

Plocamium vulgare, *Lamour.*, Ess. p. 50.

Fucus Plocamium, *Gmel.*, Hist. p. 153, t. 16, f. 1; *Lightf.*, Fl. Scot. II., p. 957.

Hab. On sand-covered rocks at low-water mark and below, also on the stems of *Laminarie* and other Algæ. All the year. Fruit July—Oct. Common all along the coast, more frequently found amongst the Algæ washed ashore from deep water than growing.

F. UNCINATA (Ag.) *Harv.*

Phyc. Brit., pl. 44, fig. 9; *Ktz.*, Spec. Alg., p. 884; *J. Ag.*,

Spec. Alg. II., p. 396; *Crouan*, Alg. Finist., no. 219.

Hab. Cast ashore from deep water. Rare. Winter. Berwick Bay, Burnmouth.

RHODOPHYLLIS, KtZ.

RHODOPHYLLIS BIFIDA (Good. et Woodw.) KtZ.

Bot. Zeit. 1847, p. 23.—*Fucus bifidus*, Good. et Woodw.,
Linn. Trans. III., p. 159, t. 17, f. 1.

Descr. *Rhodymenia bifida*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 32.

Exsicc. „ „ Wyatt, Alg. Danm., no. 66.

Rhodophyllis bifida, Crouan, Alg. Finist., no. 215; *Le Jol.*, Alg.
Mar. Cherb., no. 98.

Syn. „ „ KtZ., Spec. Alg., p. 786; *J. Ag.*, Spec. Alg. II.,
p. 388; *Id.*, Epicr. p. 361.

Sphaerococcus bifidus, Ag., Spec. Alg. I., p. 299; Ag., Syst. p. 231.

Halymenia bifida, Lamour.

Rhodymenia bifida, Grev., Alg. Brit., p. 85; Harv., Phyc. Brit.
pl. 32 (excl. var.)

Hab. Cast ashore from deep-water. July and August. Very rare.
Berwick Bay, Greenses.

EUTHORA, J. Ag.

EUTHORA CRISTATA (Linn.) J. Ag.

Alg. Lieb., p. 12.—*Fucus cristatus*, Linn. in Turn., Hist.
Fuc. I., p. 48.

Descr. *Rhodymenia cristata*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 307.

Exsicc. *Euthora cristata*, Aresch., Alg. Scand. Exsicc., no. 308; Holmes,
Alg. Brit. Rar. Exsicc., no. 39.

Syn. „ „ J. Ag., Spec. Alg. II., p. 385; *Id.*, Epicr., p.
360.

Sphaerococcus cristatus, Ag., Syn., p. 29; *Lyngb.*, Hydr. Dan., p.
13, t. 4; Hook., Fl. Scot., pt. 2, p. 104; Grev., Crypt. Fl. t. 85;
Id., Fl. Edin., p. 296.

Halymenia cristata, Johnston, Fl. Berw. II., p. 229.

Callophyllis cristata, KtZ., Spec. Alg., p. 747.

Hab. On the stems of *Laminaria hyperborea*. June—Sept. Fruit
Summer. Very rare. Berwick Bay, Sharper Head.

Berwick specimens of this pretty little species are usually very
small, seldom more than an inch long, and often much less.

HYDROLAPATHUM, *Stackh.*HYDROLAPATHUM SANGUINEUM (Linn.) *Stackh.*

Tentam., p. 67 (1809).—*Fucus sanguineus*, Linn., Mant., p. 136.

Descr. *Delesseria sanguinea*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 151.

Exsicc. „ „ Wyatt, Alg. Danm., no. 13; Aresch., Alg. Scand. Exsicc., no. 73.

Wormskioldia „ Crouan, Alg. Finist., no. 220.

Hydrolapathum „ Le Jol., Alg. Cherb., no. 29.

Syn. „ „ J. Ag., Epicr., p. 370.

Delesseria sanguinea, Lamour., Ess., p. 124; Ag., Sp. Alg. I., p. 172; Hook., Fl. Scot., pt. 2, p. 100; Grev., Fl. Edin., p. 292; Id., Alg. Brit., p. 72; Johnston, Fl. Berw. II., p. 229.

Wormskioldia sanguinea, Spreng., Syst. Veg. IV., p. 331; J. Ag., Spec. Alg. II., p. 408; Crouan, Fl. Finist., p. 145.

Maugeria sanguinea, S.O. Gray, British Sea-weeds, p. 164.

Hab. On rocks at low-water mark and below, also in deep rock-pools in caves. Frequent. Fruit Dec.—March. Berwick Bay, The Coves, Holy Island, and elsewhere along the coast.

FAMILY—**Delesseriaceæ.**NITOPHYLLUM, *Grev.*NITOPHYLLUM LACERATUM (Gmel.) *Grev.*

Alg. Brit., p. 83.—*Fucus laceratus*, Gmel., Hist., p. 179, t. 21, fig. 4.

Descr. *Nitophyllum laceratum*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 267.

Exsicc. „ „ Wyatt, Alg. Danm., no. 107; Crouan, Alg. Finist., nos. 258 et 259; Le Jol., Alg. Mar. Cherb., no. 76.

Syn. „ „ J. Ag., Spec. Alg. II., p. 657; Id., Epicr., p. 469.

Delesseria lacerata, Ag., Spec. Alg. I., p. 184; Grev., Fl. Edin., p. 293; Hook., Fl. Scot. II., p. 101.

Halymenia lacerata, Duby, Bot. Gall. II., p. 944; Johnston, Fl. Berw. II., p. 229.

Cryptopleura lacerata, Ktz., Spec. Alg., p. 870.

Fucus crispatus, Huds., Fl. Angl., p. 58.

Hab. On rocks and Algæ at low-water mark and below. Fruit June—Oct. Frequent. Berwick Bay, Burnmouth, Scremerston.

NITOPHYLLUM REPTANS, *Crouan*,

Ann. Sc. Nat., vol. xv., et Florule du Finistère, p. 153, pl. 21, gen. 140 bis.

Exsicc. Nitophyllum reptans, *Holmes*, Alg. Brit. Rar. Exsicc., no. 16.

Syn. „ „ *J. Ag.*, *Epicr.*, p. 470.

Hab. On the roots and stems of *Laminaria hyperborea*. Jan.—Oct.

Rare. Berwick Bay, Burnmouth, Holy Island.

A small species with thin, veined, dichotomously divided fronds, which creep over the roots and stems of *Laminaria hyperborea*, to which they are attached by small rootlets. The upper surface of the frond has a pitted appearance caused by the unattached portions of the thallus being slightly more elevated than those portions which overlie the rootlets. The fructification of this species has not been observed in Britain.

NITOPHYLLUM PUNCTATUM (*Stackh.*) *Grev.*

Alg. Brit., p. 79, t. 12.—*Ulva punctata*, *Stackh.*, in Linn. Trans. III., p. 236.

Descr. Nitophyllum punctatum, *Harv.*, Phyc. Brit., pls. 202 and 203 ;

J. Ag., Spec. Alg. II., p. 659 ; *Id.*, *Epicr.*, p. 448.

F. OCELLATA (*Lamour.*)

J. Ag., l.c.—*Fucus ocellatus*, *Lam.*, *Ess.*, t. 32.

Descr. Nitophyllum punctatum, var. ocellatum, *Harv.*, l.c. pl. 203.

Exsicc. „ ocellatum, *Wyatt*, Alg. Danm., no. 15.

Syn. „ „ *Grev.*, Alg. Brit., p. 78.

Aglaophyllum ocellatum, *Mont.*, *Ktz.*, Spec. Alg., p. 867.

Delesseria ocellata, *Ag.*, Spec. Alg. I., p. 187 ; *Ag.*, Syst., p. 252 ;

Grev., *Crypt.*, t. 347.

Hab. Berwick Bay. Not uncommon.

F. ULVOIDES (*Turn.*) *J. Ag.*

l.c.—*Fucus ulvoides*, *Turn.*, Hist., t. 80.

Syn. Nitophyllum punctatum, *Grev.*, l.c.

Aglaophyllum punctatum, *Mont.*, *Ktz.*, Tab. Phyc. XVI., t. 36.

Hab. Berwick Bay. Not uncommon.

F. CRISPATA, *Harv.*

Descr. Nitophyllum punctatum, var. crispatum, *Harv.*, Phyc. Brit., pl. 203.

Hab. Cast ashore from deep-water during the summer months. Not uncommon. Berwick Bay.

With us, the varieties *ocellatum* and *crispatum*, which have narrow irregularly dichotomous fronds more or less crisped at the margins, are more frequently washed ashore than the broader less divided variety *ulvoides*.

NITOPHYLLUM BONNEMAISONI, *Grev.*

Alg. Brit., p. 81.

Descr. Nitophyllum Bonnemaisioni, *Harv.*, Phyc. Brit.*Fig.* „ „ *Harv.*, l.c. pl. 23.*Exsicc.* „ „ *Crouan*, Alg. Finist., no. 255.*Syn.* „ „ *J. Ag.*, Spec. Alg. II., p. 665; *Id.*,
Epicr., p. 452.Delesseria Bonnemaisioni, *Ag.*, Sp. Alg. I., p. 186; *Ag.*, Syst., p.
252; *Grev.*, Sc. Crypt. Fl., t. 322 (excl. figs. 3 et 8).Aglaiophyllum Bonnemaisioni, *Endl.*, 3rd. Suppl., p. 52.Cryptopleura Bonnemaisioni, *Ktz.*, Spec. Alg., p. 871; *Id.*, Tab.
Phyc. XVI., t. 28.*Hab.* Cast ashore from deep-water, usually on the stems of *Laminaria*
hyperborea. Rare. Berwick Bay, Holy Island.F. CRASSINERVA, *Nob.*var. stipite brevi, in costam supra sensim evanescentem
abeunte, fronde subintegra vel flabelliformiter dichotoma,
segmentis paucis, angustis. Tab. Nostr. XI., fig. 12.*Hab.* On the stems of *Laminaria hyperborea*. July and Aug. Berwick
Bay. Rare.

In this curious variety the short stem, instead of passing gradually into the lamina, seems to be continued upwards, forming a very evident nerve in the centre of each segment. The tetraspores are usually collected near the apices of the segments.

NITOPHYLLUM HILLIÆ, *Grev.*, Alg. Brit., p. 80.*Descr.* Nitophyllum Hilliæ, *Harv.*, Phyc. Brit.*Fig.* „ „ *Harv.*, l.c. pl. 169.*Exsicc.* „ „ *Crouan*, Alg. Finist., no. 256; *Le Jol.*, Alg.
Mar. Cherb., 215.Nitophyllum ulvoideum, *Wyatt*, Alg. Danm., no. 16.*Syn.* „ „ *Hook.*, Br. Fl. II., p. 287.Nitophyllum Hilliæ, *J. Ag.*, Spec. Alg. II., p. 667; *Id.*, Epicr., p.
453.Cryptopleura Hilliæ, *Ktz.*, Spec. Alg., p. 871.Aglaiophyllum Hilliæ, *Endl.*, 3rd Suppl., p. 52.

What appears to be a variety of this species is occasionally washed ashore at Berwick during the summer months.

The fronds are much thicker than those of any other of our native Nitophylla, deeply and irregularly divided, the segments broad, with very obtuse apices. All my Berwick specimens bear cystocarps or are perforated with small round holes caused by the mature spores having escaped from the frond.

DELESSERIA, *Lamour.*DELESSERIA ALATA (Huds.) *Lamour.*

Ess., p. 124.—*Fucus alatus*, *Huds.*, Fl. Angl., p. 578.

Descr. *Delesseria alata*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 247.

Essicc. „ „ *Wyatt*, Alg. Danm., no. 14; *Crouan*, Alg. Finist., nos. 263 et 264; *Le Jol.*, Alg. Mar. Cherb., no. 227.

Syn. „ „ *J. Ag.*, Spec. Alg. II., p. 683; *Id.*, *Epier.*, p. 483; *Grev.*, Alg. Brit., p. 74.

Hypoglossum alatum, *Ktz.*, Phyc. Gen., p. 445; *Ktz.*, Spec. Alg., p. 877.

Hab. On rocks and Algæ at and below low-water mark. All the year.
Fruit Jan.—May. Common along the whole coast.

The narrow variety (*b. angustifolium*, *Crouan*, Alg. Finist., no. 264) is very common on *Laminaria* stems, but the typical form of *Delesseria alata* with wide membranous wings to the stems is far from common with us.

DELESSERIA ANGUSTISSIMA, *Griff.*

in *Harv.*, Phyc. Brit., pl. 83.

Descr. et Fig. *Delesseria angustissima*, *Harv.*, l.c.

Syn. „ „ *J. Ag.*, Spec. Alg. II., p. 686; *Id.*, *Epier.*, p. 482; *Harv.*, Man., p. 115.

Delesseria alata, var. *angustissima*, *Ag.*, Spec. Alg. I., p. 179; *Ag.*, Syst., p. 250; *Grev.*, Alg. Brit., p. 74; *Hook.*, Br. Fl. II., p. 286.

Hypoglossum angustissimum, *Ktz.*, Spec. Alg., 877; *Id.*, Tab. Phyc. XVI., t. 16.

Hypoglossum carpophyllum, *Ktz.*, l.c. t. 17.

Rhodymenia rostrata, *J. Ag.*, MSS.

Gigartina purpurascens, var. *Lyngb.*, Hydr. Dan., p. 46, t. 12.

Gelidium ? *rostratum*, *Griff.*, in *Harv.*, Man. Ed. I., p. 82.

Hab. “Berwick bay on *Laminaria* stems, *Johnston.*” *Brady*, List of Northumberland and Durham Algæ

I have never met with this species at Berwick, and have seen no specimens from that locality. I suspect the plant alluded to by *Johnston* and *Brady* was nothing more than the narrow variety of *Delesseria alata*.

DELESSERIA SINUOSA (Good. et Woodw.) Lamour.

Ess., p. 124.—*Fucus sinuosus*, Good. et Woodw., in Linn. Trans. III., p. 111.

Descr. *Delesseria sinuosa*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 259.

Exsicc. " " Wyatt, Alg. Danm., no. 62; Crouan Alg. Finist., no. 265; Le Jol., Alg. Mar. Cherb., no. 49.

Syn. " " J. Ag., Spec. Alg. II., p. 691; Id., Epier., p. 486.

Phycodrys sinuosa, Ktz., Spec. Alg., p. 874; Id., Tab. Phyc. XVI., t. 20.

Phycodrys quercifolia, Ktz., l.c. XVI., t. 18.

Wormskioldia sinuosa, Spreng., Syst. Veg., vol. IV., p. 331.

Hab. On rocks and stones in deep pools near low-water mark, also on *Laminaria* stems. All the year. Fruit Nov.—May. Not uncommon. Berwick Bay, Burnmouth, Spittal, Holy Island.

DELESSERIA HYPOGLOSSUM (Woodw.) Lamour.

Ess. p. 124.—*Fucus hypoglossum*, Woodw., in Linn. Trans. vol. II., p. 30, t. 7.

Descr. *Delesseria hypoglossum*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 2.

Exsicc. " " Wyatt, Alg. Danm., no. 63; Crouan, Alg. Finist., nos. 260 et 261; Le Jol., Alg. Mar. Cherb., no. 205.

Syn. " " J. Ag., Spec. Alg. II., p. 693; Id., Epier. p. 489.

Hypoglossum Woodwardii, Ktz., Spec. Alg., p. 875; Id., Tab. Phyc. XVI., t. 11.

Hab. Cast ashore from deep water during the summer months. Rare. Berwick Bay.

DELESSERIA RUSCIFOLIA (Turn.) Lamour.

Ess., p. 124.—*Fucus ruscifolius*, Turn., in Linn. Trans., vol. VI., p. 127, t. 8, fig. 1.

Descr. *Delesseria ruscifolia*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 26.

Exsicc. " " Crouan, Alg. Finist., no. 262.

Syn. " " J. Ag., Spec. Alg. II., p. 695; Id., Epier., p. 493.

Hypoglossum ruscifolium, Ktz., Spec. Alg., p. 875; Id., Tab. Phyc. XVI., t. 12.

Hab. Cast ashore from deep-water during the summer months. Rare. Berwick Bay, Greenses, Burnmouth.

FAMILY—**Sphærococcaceæ.**GRACILARIA, *Grev.*GRACILARIA CONFEROIDES (Linn.) *Grev.*

Alg. Brit., p. 123.—*Fucus confervoides*, *Linn.*, Sp. Pl., p. 1629.

Descr. *Gracilaria confervoides*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 65.

Exsicc. „ „ *Le Jol.*, Alg. Mar. Cherb., no. 192.

Gigartina confervoides, *Wyatt*, Alg. Danm., no. 75.

Plocaria confervoides, *Crouan*, Alg. Finist., no. 248 et 249.

Syn. *Gracilaria confervoides*, *J. Ag.*, Spec. Alg. II., p. 587; *Id.*, Epicr., p. 413.

Sphærococcus confervoides, *Ag.*, Spec. Alg. I., p. 303; *Ktz.*, Spec. Alg., p. 772.

Plocaria confervoides, *Mont.*, Fl. Alger., p. 71; *Crouan*, Florule du Finist., p. 151.

Gigartina confervoides, *Lamour.*, Ess., p. 48; *Harv.*, Man. Ed. I., 74.

Hypnea confervoides, *J. Ag.*, Alg. Medit., p. 149.

Hab. On rocks and stones in sandy pools near low-water mark. All the year. Not common. Berwick Bay, Holy Island.

FAMILY—**Solieriaceæ.**CATENELLA, *Grev.*CATENELLA OPUNTIA (Good. et Woodw.) *Grev.*

Alg. Brit., p. 166, t. 17.—*Fucus Opuntia*, *Good. et Woodw.*, in *Linn. Trans.* III., p. 219.

Descr. *Catenella Opuntia*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 88.

Exsicc. „ „ *Wyatt*, Alg. Danm., no. 126; *Crouan*, Alg. Finist., no. 209; *Le Jol.*, Alg. Mar. Cherb., no. 21.

Syn. „ „ *Ktz.*, Spec. Alg., p. 724; *J. Ag.*, Spec. Alg. II., p. 352; *Id.*, Epicr., p. 588.

Halymenia? *Opuntia*, *Ag.*, Spec. Alg. I., p. 217; *Ag.*, Syst., p. 245.

Rivularia Opuntia, *Sm.*, E.B., t. 1868.

Dumontia Opuntia, *Crn.* in *Desmaz.* Exsicc., no. 1227.

Chordaria Opuntia, *Spreng.*, Syst. Veg., vol. IV., p. 330.

Chondria Opuntia, *Hook.*, Fl. Scot., pt. II., p. 106.

Lomentaria Opuntia, *Gaill.*, Dict. Hist. Nat., vol. 53, p. 367.

Fucus repens, *Lightft.*, Fl. Scot. II., p. 961.

Hab. On rocks near high-water mark usually on the under side of overhanging ledges, and in caves. Fruit July—Aug. Coves, Burnmouth, Scremerston, Holy Island.

FAMILY—**Gelidiaceæ.**GELIDIUM, *Lamour.*GELIDIUM CRINALE (Turn.) *J. Ag.*

Epier., p. 546.—*Fucus crinalis*, *Turn.*, *Hist. Fuc.*, t. 198.

Descr. *Gelidium crinale*, *J. Ag.*, l.c.; *Hauck*, *Meeresalg.*, p. 192.

Syn. *Gelidium corneum*, var. *crinale*, *Grev.*, *Alg. Brit.*, p. 144; *Harv.*, *Phyc. Brit.*, pl. 53, fig. 5, et *Auct. Plur.*

Acrocarpus lubricus and *Acrocarpus crinalis*, *Ktz.*, *Tab. Phyc.*, vol. xvii., t. 32 et 33.

Hab. On mud covered rocks between tide-marks. All the year. Frequent. Greenses, Coves, Holy Island, Burnmouth.

A small setaceous species one or two inches high, the filaments sparingly and irregularly branched. It forms tufts on mud covered rocks usually under overhanging ledges between tide-marks.

GELIDIUM CORNEUM (Huds.) *Lamour.*

Ess., p. 41.—*Fucus corneus*, *Huds.*, *Fl. Angl.*, p. 585.

Descr. *Gelidium corneum*, *Harv.*, *Phyc. Brit.*

Fig. " " *Harv.*, l.c. pl. 53.

Eesicc. " " *Wyatt*, *Alg. Danm.*, no. 30; *Crouan*, *Alg. Finist.*, no. 230; *Le Jol.*, *Alg. Cherb.*, no. 191.

Syn. " " *J. Ag.*, *Spec. Alg.* ii., p. 469; *Id.*, *Epier.*, p. 549; *Ktz.*, *Spec. Alg.*, p. 765; *Grev.*, *Alg. Brit.*, p. 143.

Gelidium corneum, var. *capillaceum*, *Grev.*, l.c.; *Harv.*, *Phyc. Brit.* *Descr.*, pl. 53.

Syn. *Gelidium capillaceum*, *Ktz.*, *Tab. Phyc.* xviii., p. 18, t. 53; *Hauck*, *Meeresalg.*, p. 190, fig. 82 A-C.

Fucus capillaceus, *Gmel.*, *Hist. Fuc.*, p. 146, tab. 15, fig. 1.

Hab. Rocks near low-water mark. Holy Island. Very rare. "Black rocks near Bamburgh" Dr. Greville.

HARVEYELLA, SCHMITZ AND RKE.

HARVEYELLA MIRABILIS (Reinsch.) *Rke.*

Algenflora der westlichen Ostsee, p. 28.—*Choreocolax mirabilis*, *Reinsch*, *Contrib. ad Algol. et Fungol.* taf. 53 and 54.

Hab. Parasitic on *Rhodomela subfusca*. Rare. Berwick Bay, Holy Island.

Reinsch's genus *Choreocolax*, of which he figures several species, was founded on barren specimens, and not improbably contains plants belonging to more than one genus. Schmitz and Reinke have consequently removed the present species, of which the fructification is known to a new genus.

Harveyella mirabilis is a true vegetable parasite. It consists of rose coloured filaments which are parasitic in the fronds of *Rhodomela subfusca*, producing irregularly shaped convex masses on its stems. These masses are composed partly of the filaments of the parasite and partly of the distorted cells of the host plant.

FAMILY—**Spongiocarpeæ.**

POLYIDES, *Ag.*

POLYIDES ROTUNDUS (Gmel.) *Grev.*

Alg. Brit., p. 70, t. 11.—*Fucus rotundus*, *Gmel.*, Hist. Fuc., p. 110, t. 6, fig. 3 (excl. Syn. *Huds. et Raii.*)

Descr. Polyides rotundus, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 95.

Essicc. „ „ *Wyatt*, Alg. Danm., no. 161; *Crouan*, Alg. Finist., no. 268; *Le Jol.*, Alg. Mar. Cherb., no. 117.

Syn. „ „ *Hook.*, Br. Fl. II., p. 284; *Harv.*, Man., p. 146; *Johnst.*, Fl. Berw. II., p. 233.

Polyides lumbricalis, *Ag.*, Sp. Alg. II., p. 392; *Ag.*, Syst. Alg., p. 194; *J. Ag.*, Spec. Alg. II., p. 721; *Id.*, Epicr., p. 629; *Crouan*, Flor. du Finist., p. 154.

Furcellaria lumbricalis, *Ktz.*, Phyc. Gen., p. 402; *Ktz.*, Spec. Alg., p. 748 (non *Lamour.*)

Spongiocarpus rotundus, *Grev.*, Fl. Edin., p. 286.

Hab. On rocks and stones in sandy pools near low-water mark. Fruit Nov.—March. Frequent. Berwick Bay, Burnmouth, Holy Island.

FAMILY—**Rhodomelaceæ.**

ODONTHALIA, *LYNGB.*

ODONTHALIA DENTATA (Linn.) *Lyngb.*

Hydr. Dan., p. 9, t. 3.—*Fucus dentatus*, *Linn.*, Syst. Nat. II., p. 718; *Id.*, Mant. p. 135.

Descr. Odonthalia dentata, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 34.

- Syn.* *Odonthalia dentata*, *Grev.*, Alg. Brit., p. 101, pl. 13; *Johnst.*, Fl. Berw., p. 230; *Ktz.*, Phyc. Gen., p. 448.
Rhodomela dentata, *Ag.*, Sp. Alg. i., p. 370; *Ag.*, Syst., p. 196.
Delesseria dentata, *Lamour.*, Ess., p. 36.
Sphærococcus dentatus, *Hook.*, Fl. Scot. ii., p. 102.
Hab. On rocks in deep pools near low water-mark, and on the stems of *Laminaria hyperborea*. All the year. Fruit Dec.—March. Not uncommon. Berwick Bay, Sharper Head, Burnmouth, Holy Island, and in the deep rock pools in the caves north of Dodd's Well.

RHODOMELA, Ag.

RHODOMELA SUBFUSCA (Woodw.) Ag.

Spec. Alg. i., p. 378.—*Fucus subfuscus*, *Woodw.*, in Linn. Trans. i., p. 131, t. 12.

Descr. *Rhodomela subfusca*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 264.

Essicc. „ „ *Wyatt*, Alg. Danm., no. 111; *Crouan*, Alg. Finist., no. 318; *Le Jol.*, Alg. Mar. Cherb., no. 177.

Syn. „ „ *J. Ag.*, Spec. Alg. ii., p. 883; *Grev.*, Alg. Brit., p. 103; *Johnst.*, Fl. Berw. ii., p. 235.

Sphærococcus subfuscus, *Hook.*, Fl. Scot., pt. ii., p. 104.

Hab. On rocks and stones in sandy pools near low-water mark. Fruit Jan.—March, and again in Summer. Common. Berwick Bay, Sharper Head, Burnmouth, Holy Island.

RHODOMELA LYCOPODIOIDES (Linn.) Ag.

Spec. Alg. i., p. 377.—*Fucus lycopodioides*, *Linn.*, Syst., Nat. ii., p. 717.

Descr. *Rhodomela lycopodioides*, *Harv.*, Phyc. Brit.

Fig. „ „ *Harv.*, l.c. pl. 50.

Syn. „ „ *J. Ag.*, Spec. Alg. ii., p. 885; *Grev.*, Alg. Brit., p. 102; *Johnst.*, Fl. Berw. ii., p. 234.

Lophura lycopodioides, *Ktz.*, Spec. Alg.

Furcellaria lycopodioides, *Ag.*, Syn., p. 11; *Hook.*, Fl. Scot., pt. 2, p. 97.

Gigartina lycopodioides, *Lyngb.*, Hydr. Dan., p. 45; *Grev.*, Fl. Edin., p. 289.

Hab. On the stems of *Laminaria hyperborea*, and occasionally on the shady sides of deep rock-pools. All the year. Fruit March—June. Frequent. Berwick Bay, Burnmouth, Holy Island.

Many of the forms of this very variable species have received names, and it is very probable that some of the northern varieties described by Kjellman, occur at Berwick.

POLYSIPHONIA, GREV.

POLYSIPHONIA SERTULARIOIDES (Gratel.) J. Ag.

Spec. Alg. II., p. 93.—*Ceramium sertularioides*, *Gratel.*,
 Descr. aliquor. *Ceramior.*, fig. IV., in appendice Obser. sur
 la Const. l'ete de 1806, Montp. 1806.

Descr. Polysiphonia pulvinata, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 102B; *Hauck*, Meeresalg.,
 p. 219, fig. 96.

Syn. " " *Ktz.*, Spec. (non *J. Ag.*, Alg. Medit. nec.
Hutch. pulvinata, *Ag.*, Spec.)

Polysiphonia subtilis, *D. Ntrs.*, Alg. Mar. Ligust., t. 4; *Ktz.*, Tab.
 Phyc. XIII., t. 88; *J. Ag.*, Alg. Medit.

Polysiphonia Jacobi, *Ktz.*, Tab. Phyc. XIII., t. 92.

Hab. On rocks and Algæ near low-water mark. Jan.—Oct. Not un-
 common. Berwick Bay, Holy Island.

POLYSIPHONIA URCEOLATA (Lightf.) Grev.

Fl. Edin., p. 309.—*Conferva urceolata*, *Lightf.* in *Dillw.*,
Intr., p. 82, t. G.

F. TYPICA.

Descr. Polysiphonia urceolata, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 167.

Exsicc. " " *Wyatt*, Alg. Danm., no. 133; *Crouan*,
 Alg. Finist., no. 290; *Le Jol.*, Alg. Mar. Cherb., no. 15.

Syn. " " *Ktz.*, Spec. Alg., p. 824; *Id.*, Tab. Phyc.
 XIII., t. 92; *J. Ag.*, Spec. Alg. II., p. 970.

Hutchinsia urceolata, *Ag.*, Syst., p. 151; *Ag.*, Spec. Alg. II., p.
 70; *Hook.*, Fl. Scot. II., p. 88.

Hab. On rocks and stones in pools near low-water mark. Fruit June
 —Sept. Berwick Bay, Burnmouth, Holy Island.

F. PATENS (Dillw.) J. Ag., l.c.

Syn. Polysiphonia patens, *Ktz.*, Tab. Phyc. XIII., t. 91.

Polysiphonia uncinata, *Crn.*, Alg. Mar. Finist., no. 289.

Hab. On the stems of *Laminaria hyperborea*. Common.

F. FORMOSA (Suhr.) J. Ag., l.c.

Syn. *Hutchinsia formosa*, *Suhr.*, Flora, 1831, p. 709; *Harv.*, Phyc. Brit.
 pl. 168; *Wyatt*, Alg. Danm., no. 216; *Ktz.*, Tab. Phyc. XIII., t.
 78.

Polysiphonia roseola, *Aresch.*, Alg. Scand. Exsicc., no. 69.

Hab. On rocks near low-water mark. Rare. Berwick Bay.

F. COMOSA, *J. Ag.*, l.c.

Syn. *Hutchinsia comosa*, *Ag.*, Syst. et Spec.

Conferva stricta, *Dillw.*, Conf., p. 83, t. 40.

Hutchinsia stricta, *Ag.*, *Lyngb.*, Hydr. Dan., p. 115, t. 36.

Polysiphonia stricta, *Grev.*, Fl. Edin., p. 309; *Johnston*, Fl. Berw. II., p. 237.

Hab. On rocks and Algæ between tide-marks. "In coves near high-water mark, abundant" *Johnston*.

POLYSIPHONIA FIBRATA (*Dillw.*) *Harv.*

in *Hook.* Br. Fl., II., p. 329.—*Conferva fibrata*, *Dillw.*, Conf.

Syn., p. 84, t. G.

Descr. *Polysiphonia fibrata*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 208.

Exsicc. " " *Wyatt*, Alg. Danm., no. 39; *Le Jol.*, Alg. Mar. Cherb., no. 59; *Crouan*, Alg. Finist., no. 294.

Syn. " " *Ktz.*, Spec. Alg., p. 826; *Ktz.*, Tab. Phyc. XIII., p. 100; *J. Ag.*, Spec. Alg. II., p. 965.

Hutchinsia allochroa, var. *fibrata*, *Ag.*, Syst., p. 154.

Polysiphonia allochroa, *Loud.*, Encycl., no. 15237; *Johnston*, Fl. Berw. II., p. 238.

Hab. On rocks and Algæ near low-water mark. Fruit May—Oct. Frequent. Berwick Bay, Sharper Head, Spittal, Holy Island. "On the sides of coves along the coast" *Johnst.*

POLYSIPHONIA VIOLACEA (*Ag.*) *Wyatt.*

Alg. Danm., no. 176.—*Hutchinsia violacea*, *Ag.*, *Syn.*, p. 54.

Descr. *Polysiphonia violacea*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 209.

Hab. On rocks, stones, and Algæ, near low-water mark. Rare. Berwick Bay, Holy Island.

POLYSIPHONIA FIBRILLOSA (*Dillw.*) *Harv.*

in *Hook.*, Br. Fl. II., p. 334.—*Conferva fibrillosa*, *Dillw.*, Conf., p. 86, t. G.

Descr. *Polysiphonia fibrillosa*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 302.

Exsicc. " " *Wyatt*, Alg. Danm., no. 136; *Crouan*, Alg. Finist., no. 296.

Syn. " " *J. Ag.*, Spec. Alg. II., 991; *Ktz.*, Spec. Alg., p. 827.

Hutchinsia fibrillosa, *Ag.*, Spec. Alg. II., p. 78.

Hab. On rocks, stones, and Algæ, especially *Cladostephus spongiosus*, *Chorda filum*, and *Desmarestia aculeata*. Fruit May—Oct. Frequent. Berwick Bay, Holy Island.

POLYSIPHONIA BRODIAEI (Dillw.) Harv.

in *Hook.*, Br. Fl. II., p. 328.—*Conferva Brodiaei*, *Dillw.*, Conf., p. 81, t. 107.

Descr. Polysiphonia Brodiaei, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 195.

Exsicc. " " *Wyatt*, Alg. Danm., no. 83 ; *Crouan*, Alg. Finist., no. 299 ; *Le Jol.*, Alg. Mar. Cherb., no. 14.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 993 ; *Ktz.*, Phyc. Gen., p. 427 ; *Johnst.*, Fl. Berw. II., p. 237.

Hutchinsia Brodiaei, *Lyngb.*, Hydr. Dan., p. 109, t. 33 ; *Hook.*, Fl. Scot. II., p. 88.

Hutchinsia penicillata, *Ag.*, Sp. Alg. II., p. 65 ; *Ktz.*, Tab. Phyc. XIV., t. 1.

Hab. On rocks and stones from half tide-level to low-water mark. Fruit June—Sept. Frequent. Berwick Bay, Sharper Head, Scremerston.

POLYSIPHONIA ELONGATA (Huds.) Harv.

in *Hook.*, Br. Fl. II., p. 333.—*Conferva elongata*, *Huds.*, Fl. Angl. II., p. 599.

Descr. Polysiphonia elongata, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pls. 192, 193.

Exsicc. " " *Wyatt*, Alg. Danm., no. 40 ; *Crouan*, Alg. Finist., no. 301 ; *Le Jol.*, Alg. Mar. Cherb., no. 233.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 1004 ; *Ktz.*, Spec. Alg., p. 828 ; *Ktz.*, Tab. Phyc. XIV., t. 4.

Hutchinsia elongata, *Ag.*, Syn. p. 54 ; *Hook.*, Fl. Scot. II., p. 87.

Ceramium elongatum, *Roth*, Cat. Bot. III., p. 128 ; *Grev.*, Fl. Edin., p. 310 ; *Johnston*, Fl. Berw. II., p. 239 (Lobster-horns.)

F. DENUDATA, J. Ag., l.c.

Syn. Polysiphonia elongata, b. denudata, *Harv.*, Man. p. 86.

Hab. On rocks and stones in pools from half-tide level to low-water mark and below. Winter. Not uncommon. Berwick Bay, Holy Island.

F. ROSEA, J. Ag., l.c.

Syn. Polysiphonia rosea, *Grev.*, Fl. Edin., p. 310.

Hab. On rocks near low-water mark. Spring and early Summer. Berwick Bay, Holy Island, and elsewhere along the coast.

POLYSIPHONIA FASTIGIATA (Roth) Grev.

Fl. Edin., p. 308.—*Ceramium fastigiatum*, *Roth*, Fl. Germ. III., p. 463.

Descr. Polysiphonia fastigiata, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 299.

Evsicc. Polysiphonia fastigiata, *Wyatt*, Alg. Danm., no. 177; *Crouan*, Alg. Finist., no. 307; *Le Jol.*, Alg. Mar. Cherb., no. 79.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 1029; *Ktz.*, Spec. Alg., p. 809; *Johnston*, Fl. Berw. II., p. 235.

Hutchinsia fastigiata, *Ag.*, *Syn.* p. 53; *Hook.*, Fl. Scot., pt. II., p. 87.

Conferva polymorpha, *Linn.*, Syst. Nat. II., p. 721; *Lightf.*, Fl. Scot., p. 989; *Dillw.*, Conf., p. 81, t. 44.

Hab. On Fuci especially *Ascophyllum nodosum*, between tide-marks. Very common. Fruit June—Aug.

POLYSIPHONIA ATRO-RUBESCENS (Dillw.) Grev.

Fl. Edin., p. 308.—*Conferva atro-rubescens*, *Dillw.*, Conf. t. 70.

Descr. Polysiphonia atro-rubescens, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 172.

Evsicc. " " *Crouan*, Alg. Finist., no. 308; *Le Jol.*, Alg. Mar. Cherb., no. 35.

Syn. " " *Ktz.*, Spec. Alg., p. 821; *J. Ag.*, Spec. Alg. II., p. 1035; *Ktz.*, Tab. Phyc. XIII., t. 82.

Hutchinsia atro-rubescens, *Ag.*, Spec. Alg. II., p. 64.

Polysiphonia badia, *Grev.* in *Hook.*, Br. Fl. II., p. 331; *Johnston*, Fl. Berw. II., p. 237.

Conferva badia, *Dillw.*, Conf. p. 85, t. 6.

Hutchinsia badia, *Ag.*, *Syn.* p. 56; *Hook.*, Fl. Scot. II., p. 88.

Polysiphonia Agardhiana, *Grev.*, Scot. Crypt. Fl. t. 210; *Harv.* in *Hook.*, Br. Fl. II., p. 331; *Ktz.*, Spec. Alg., p. 811; *Ktz.*, Tab. Phyc. XIII., t. 49; *Wyatt*, Alg. Danm., no. 134.

Hab. On rocks and stones in sandy pools near low-water mark. All the year. Fruit May—Oct. Not uncommon. Berwick Bay, Sharper Head, Spittal, Holy Island, Scremerston.

POLYSIPHONIA NIGRESCENS (Huds.) Harv.

in *Hook.*, Br. Fl. II., p. 332.—*Conferva nigrescens*, *Huds.*, Fl. Angl., p. 602.

Descr. Polysiphonia nigrescens, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 277.

Evsicc. " " *Wyatt*, Alg. Danm., no. 135; *Crouan*, Alg. Finist., no. 310; *Le Jol.*, Alg. Mar. Cherb., no. 218.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 1057; *Ktz.*, Spec. Alg., p. 813; *Id.*, Tab. Phyc. XIII., t. 56; *Johnston*, Fl. Berw. II., p. 236.

Hutchinsia nigrescens, *Ag.*, Syst. p. 151.

Polysiphonia fucoides, *Grev.*, Fl. Edin., p. 308; *Johnston*, Fl. Ber. II., p. 236.

Conferva fucoides, *Huds.*, Fl. Angl., p. 603; *Dillw.*, Conf. p. 81, t. 75, figs. 1 and 3; *Eng. Bot.*, t. 1743.

Hab. On rocks and Algæ between tide-marks. Fruit May—Sept. Very common.

F. AFFINIS (Moore.) *Harv.*

Ner. Bor. Am., *J. Ag.*, Spec. Alg.—*Polysiphonia affinis*, *Harv.*, Phyc. Brit., pl. 303.

Hab. On rocks near low-water mark. Rare. Berwick Bay.

POLYSIPHONIA PARASITICA (Huds.) *Grev.*

Fl. Edin., p. 309.—*Conferva parasitica*, *Huds.*, Fl. Angl., p. 604.

Descr. *Polysiphonia parasitica*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 147.

Exsicc. " " *Wyatt*, Alg. Danm., no. 175; *Crouan*, Alg. Mar. Finist., no. 315.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 930.

Hutchinsia parasitica, *Ag.*, Syst., p. 147; *Ag.*, Spec. Alg. II., p. 103.

Hutchinsia Möstingii, *Lyngb.*, Hydr. Dan., p. 116, t. 36.

Hab. On rocks near low-water mark, usually on the chalky crusts formed by *Lithothamnion polymorphum*; also on *Laminaria* stems. Fruit June—Aug. Berwick Bay, Burnmouth, Holy Island.

POLYSIPHONIA BYSSOIDES (Good. et Woodw.) *Grev.*

Fl. Edin., p. 309.—*Fucus byssoides*, *Good. et Woodw.*, Linn. Trans. III., p. 229.

Descr. *Polysiphonia byssoides*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 284.

Exsicc. " " *Wyatt*, Alg. Danm., no. 85; *Crouan*, Alg. Finist., no. 316.

Syn. " " *Ktz.*, Spec. Alg., p. 834; *J. Ag.*, Spec. Alg. II., p. 1042.

Hutchinsia byssoides, *Ag.*, Sp. Alg. II., p. 99.

Conferva byssoides, *Eng. Bot.*, t. 547.

Hab. Cast ashore from deep-water during the summer months. Fruit June—Aug. Frequent. Berwick Bay, Holy Island.

BONNEMAISONIA, Ag.

BONNEMAISONIA ASPARAGOIDES (Woodw.) *Ag.*

Spec. Alg. I., p. 197.—*Fucus asparagoides*, *Woodw.*, in Linn. Trans. II., p. 29, t. 6.

Descr. *Bonnemaisionia asparagoides*, *Harv.*, Phyc. Brit.

Fig. " " *Harv.*, l.c. pl. 51.

Exsicc. " " *Crouan*, Alg. Finist., no. 276.

Syn. " " *Ktz.*, Spec. Alg., p. 843; *Id.*, Tab. Phyc. xv., t. 32; *J. Ag.*, Spec. Alg. II., p. 779.

Plocamium asparagoides, *Lamour.*, *Ess.*, p. 50.

Ceramium asparagoides, *Roth*, *Cat. Bot.* III., p. 110.

Hab. Cast ashore from deep-water. June—Aug. Rare. Berwick Bay.

LAURENCIA, LAMOUR.

LAURENCIA HYBRIDA (De Cand.) *Lenorm.*

in *Duby*, *Bot. Gall.*, p. 951.—*Fucus hybridus*, *De Cand.*, *Fl. Fran.* II., p. 30.

Deser. *Laurencia caespitosa*, *Harv.*, *Phyc. Brit.*

Fig. " " *Harv.*, l.c. pl. 286.

Exsicc. " " *Crouan*, *Alg. Finist.*, no. 278.

Laurencia pinnatifida, var. *angusta*, *Wyatt*, *Alg. Danm.*, no. 162.

Syn. " " *Grev.*, *Alg. Brit.*, p. 109; *Hook.*, *Br. Fl.* II., p. 296.

Laurencia hybrida, *Ktz.*, *Spec. Alg.*, p. 856; *J. Ag.*, *Spec. Alg.* II., p. 761; *Id.*, *Epier.*, p. 655; *Le Jol.*, *Alg. Mar. Cherb.*, no. 10; *Id.*, *Liste*, p. 148.

Laurencia caespitosa, *Lamour.*, *Ess.*, p. 43; *Harv.*, *Man.*, p. 98.

Chondria hybrida, *Chauv.*, *Alg. Norm.*, no. 40.

Hab. On rocks and stones between tide-marks. Common. Berwick Bay, Burnmouth, Scremerston, Holy Island, and elsewhere along the coast.

This species is mentioned by Johnston in his *Flora of Berwick-on-Tweed* as "a variety (of *L. pinnatifida*) of a yellowish colour, with a cylindrical frond, the branches simple, short and crowded towards the summit," which "grows in dense erect tufts in shallow pools much exposed to the sun."

LAURENCIA PINNATIFIDA (Gmel.) *Lamour.*

Ess., p. 42.—*Fucus pinnatifidus*, *Gmel.*, in *Linn.*, *Syst. Nat.*, p. 1385.

Deser. *Laurencia pinnatifida*, *Harv.*, *Phyc. Brit.*

Fig. " " *Harv.*, l.c. pl. 55.

Exsicc. " " *Wyatt*, *Alg. Danm.*, no. 113; *Crouan*, *Alg. Finist.*, no. 277; *Le Jol.*, *Alg. Mar. Cherb.*, no. 171.

Syn. " " *Ktz.*, *Spec. Alg.*, p. 856; *J. Ag.*, *Spec. Alg.* II., p. 764; *Id.*, *Epier.*, p. 656; *Johnston*, *Fl. Berw.* II., p. 231.

Chondria pinnatifida, *Ag.*, *Spec. Alg.* I., p. 337; *Ag.*, *Syst.*, p. 201; *Hook.*, *Fl. Scot.* II., p. 105.

Hab. On rocks between tide-marks and in deep-water. All the year. Fruit Nov.—May. Common along the whole coast.

A dwarf variety of this species, seldom more than an inch high, which grows in a somewhat imbricated manner on the sides of rocks near high-water mark, is abundant near the Singing Cove and elsewhere along the coast. Johnston quotes from Lightfoot "This fucus has a hot taste in the mouth, and is therefore called pepper dulse by the people in Scotland, who frequently eat it as a sallad;" adding "This custom has become obsolete, nor is it likely to be revived, for both the taste and odour of the plant are disagreeable."

BOSTRYCHIA, MONT.

BOSTRYCHIA SCORPIOIDES (Gmel.) Mont.

Hist. Cuba. Bot., p. 39 (1838).—*Fucus scorpioides*, Gmel., Hist. Fuc., p. 135.

Descr. *Bostrychia scorpioides*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 48.

Exsicc. *Rhodomela scorpioides*, Wyatt, Alg. Danm., no. 69.

Bostrychia scopioides, Crouan, Alg. Finist., no. 322; *Le Jol.*, Alg. Mar. Cherb., no. 122.

Syn. " " Harv., Man., p. 79; *J. Ag.*, Spec. Alg.

Rhodomela scorpioides, Ag., Spec. Alg. I., p. 380; *Ag.*, Syst., p. 200.

Helicothamnion scorpioides, Ktz., Phyc. Gen., p. 433, t. 53, v.

Alsidium scorpioides, *J. Ag.*, in Linnæa, vol. xv., p. 23.

Fucus amphibius, Huds., Fl. Angl., p. 590; *Eng. Bot.*, t. 1428.

Plocamium amphibium, Lamour., Ess., p. 50.

Hab. Adhering to the stems of the flowering plants which fringe the borders of the pools in the salt marsh at Fenham Flats. All the year. Very rare.

DASYA, AG.

DASYA COCCINEA (Huds.) Ag.

Spec. Alg. II., p. 119.—*Conferva coccinea*, Huds., Fl. Angl., p. 603.

Descr. *Dasya coccinea*, Harv., Phyc. Brit.

Fig. " " Harv., l.c. pl. 253.

Exsicc. " " Wyatt, Alg. Danm., no. 41; Crouan, Alg. Finist., no. 287; *Le Jol.*, Alg. Mar. Cherb., no. 184.

Syn. " " *J. Ag.*, Spec. Alg. II., p. 1185.

Trichothamnion coccineum, Ktz., Phyc. Gen., p. 415; *Ktz.*, Spec. Alg., p. 800.

Asperocaulon coccineum, Grev., Fl. Edin., p. 309.

Hutchinsia coccinea, Ag., Syn., p. 26; *Hook.*, Fl. Scot., pt. II., p. 89.

Hab. On rocks and Algæ near low-water mark and in deep water. More frequently found amongst the Algæ washed ashore than growing. Fruit Autumn. Frequent. Berwick Bay, Holy Island.

A few years ago I picked up on the sea-shore near Berwick, a single specimen of a *Dasya* which appeared to be specifically distinct from any of the British *Dasyæ*. Mr Holmes, to whom I sent the specimen, believed it was identical with Harvey's *Dasya Gibbesii*, and under that name I recorded its discovery in the tenth volume of the Proceedings of the Berwickshire Naturalists' Club. Since then, Mr Holmes has had an opportunity of comparing the plant with authentic specimens of *Dasya Gibbesii* and has come to the conclusion that it is not identical with them, but should be referred to *Dasya Muelleri*, Sond. (Harv. Phyc. Austr., pl. 31.) Whatever it may turn out to be, the plant is probably a waif brought to our shores by some ocean current, and is not entitled to be considered a native.

FAMILY—**CORALLINACEÆ.**

HAPALIDIUM, Ktz.

HAPALIDIUM CONFEROIDES (Ktz.) J. Ag.

Spec. Alg. II., p. 509.—Phyllactidium confervicola, Ktz., Phyc. Gen., p. 295.

Descr. Lithociptis Allmani, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 166.

Syn. Hapalidium phyllactidium, Ktz., Spec. Alg., p. 695; Harv., Syn., p. 95; Crouan, Ann. Sc. Nat. Ser. 4, t. 12, pl. 21, fig. c, 14-20. Hapalidium confervoides, Crouan, Flor. du Finist., p. 149.

Hab. On *Chylocladia rosea*, *Nitophyllum punctatum*, and other Algæ washed ashore from deep-water. Very rare. Berwick Bay.

HAPALIDIUM HILDENBRANDTIOIDES:

Crouan, Florule du Finistere., p. 149, pl. 20, Gen. 131, fig. 4-7.

Hab. On *Fastigiaria furcellata*, *Phyllophora rubens*, *Rhodymenia palmata*, *Chondrus crispus*, and other Algæ. All the year. Fruit March—Sept. Frequent. Berwick Bay, Sharper Head, Burnmouth, Holy Island, and elsewhere along the coast.

This species forms purplish, semi-transparent, filmy patches on the fronds of *Fastigiaria* and other Algæ, the dark colour of the host-plant showing through the frond of the *Hapalidium* and rendering it almost invisible when wet. The horizontally expanded fronds, are small and very thin, at first orbicular, then through many becoming confluent, indefinite in outline. They adhere very closely to the plant on which they are growing, becoming wrinkled as it contracts in drying, but they do not crumble and fall from it as so many of the epiphytic *Melobesia* do. The tetrasporic conceptacles are numerous, hemispherical and semi-transparent, the dark coloured zonate tetraspores being clearly visible through the thin cell-walls of the conceptacles. To the naked eye the conceptacles look like so many dark specks on the surface of the frond, and when present serve as a guide to the identification of the species. The cellulæ composing the frond are oblong or ovoid, arranged in simple or dichotomous lines radiating towards the margin of the frond. With us, the plant has in all probability been mistaken for *Melobesia membranacea* or one of the other epiphytic species of that genus, as it is by no means a rare plant.

MELOBESIA, ARESCH.

SUBGENUS EUMELOBESIA.

MELOBESIA LEFOLISII, *Rosanoff*.

Rech., p. 62, pl. I., fig. 1-12.

Descr. *Melobesia Lefolisii*, *Farlow*, Mar. Alg. New Eng., p. 180.

Syn. *Melobesia membranacea*, *Aresch.* in *J. Agardh's* Spec. Alg.; *Harv.*, Phyc. Brit., pl. 347, A (non *Lamour.*)

Melobesia farinosa, *Ktz.*, Spec. Alg., p. 696; *Le Jol.*, Liste Alg. Mar. Cherb., p. 150 (non *J. Ag.*, nec *Harv.*)

Hab. On old *Zostera* leaves. Frequent. Holy Island, Fenham Flats.

MELOBESIA MEMBRANACEA (Esper.) *Lamour.*

Polyp. Flexib., p. 315.—*Corallina membranacea*, *Esper.*, Zooph. Taf. 12, fig. 1-4.

Descr. *Melobesia membranacea*, *Rosanoff*, Rech., p. 66.

Fig. " " *Rosanoff*, l.c. pl. 2, fig. 13-16 et pl. 3, fig. 1.

Syn. " " *Aresch.* in *J. Ag.*, Spec. Alg. II., p. 512.

Hab. On old *Zostera* leaves and also on *Cladophora rupestris*, and other Algæ. Not uncommon. Holy Island, Berwick Bay.

MELOBESIA FARINOSA, Lamour.

Polyp. Flexib., pl. 12, fig. 3.

Descr. *Melobesia farinosa*, *Rosano*, Rech., p. 69, pl. 2, fig. 2-13; *Farlow*, Mar. Alg. New Eng., p. 180.*Syn.* „ „ *Aresch.*, in *J. Agardh's*, Spec. Alg. (non *Le Jol.*, Liste Alg. Mar. Cherb.)*Melobesia farinosa*, et *Melobesia verrucata*? *Harv.*, Phyc. Brit., pl. 347, B. et C.*Hab.* On *Phyllophora rubens*, *Rhodymenia palmata*, *Chondrus crispus*, and other Algae. Not uncommon. Berwick Bay, Scremerston.**MELOBESIA PUSTULATA, Lamour.**

Polyp. Flexib., p. 315, pl. 12, fig. 2A-B.

Descr. *Melobesia pustulata*, *Rosano*, Rech., p. 72, pl. 4, fig. 2-8; *Farlow*, Mar. Alg. New Eng., p. 181.*Syn.* „ „ *Aresch.*, in *J. Agardh's* Spec. Alg. II., p. 513; *Ktz.*, Spec. Alg., p. 696; *Ktz.*, Tab. Phyc. XIX., t. 94; *Harv.*, Phyc. Brit., pl. 347, D; *Solms*, Corall., p. 10.*Hab.* On *Chondrus crispus*, *Phyllophora rubens* and other Algae. Not uncommon. Berwick Bay, Scremerston, Holy Island.**MELOBESIA CORALLINÆ, Crouan,**

Liste des Alg. Mar. et Florule du Finistère, p. 150, pl. 20, gen. 133, bis. fig. 7-11.

Syn. *Melobesia corallinæ*, *Solms*, Corall., p. 9, pl. 2, fig. 25; pl. 3, fig. 21-24.*Exsicc.* „ „ *Holmes*, Alg. Brit. Rar. Exsicc., no. 12.*Hab.* On the fronds of *Corallina officinalis*. Not uncommon. Berwick Bay, Holy Island, Burnmouth.

A thick clumsy species, the orbicular, deltoid or irregularly shaped fronds of which form lumpy expansions on the fronds of *Corallina officinalis*, sometimes surrounding them for a distance of half-an-inch or more. The conceptacles, which are not numerous, are nearly conical in shape, and but slightly raised above the surface of the frond, the tetraspores are zonate and two-parted.

MELOBESIA LAMINARIÆ, Crouan,

Florule du Finistère, p. 150.

Exsicc. *Melobesia laminariæ*, *Holmes*, Alg. Brit. Rar. Exsicc., no. 13.*Hab.* On the stems of *Laminaria hyperborea*. Frequent. Berwick Bay, Burnmouth, Holy Island, and elsewhere along the coast.

This pretty species forms thin chalky expansions on the stems of *Laminaria hyperborea*. The fronds are pale brownish-purple, from half-an-inch to an inch and a half in diameter, at first orbicular or suborbicular, at length becoming irregular in out-

line, very brittle, crumbling and falling from the plant on which they are growing as the latter contracts in drying. The surface of the fronds is punctate all over with the orifices of the numerous, small, immersed conceptacles; the tetraspores are zonate and four-parted.

SUBGENUS—LITHOPHYLLUM, PHIL.

MELOBESIA LENORMANDI, *Aresch.*

in *J. Ag.*, Spec. Alg. II., p. 514.

Descr. Melobesia Lenormandi, *Farlow*, Alg. Mar. New. Eng., p. 181.

Fig. " " *Crouan*, Flor. du Finist., p. 150, pl. 20, gen. 132.

Exsicc. " *Holmes*, Alg. Brit. Rar., no. 87; *Desmaz*, Exsicc. 2nd ser., no. 623.

Syn. " " *Le Jol.*, Liste Alg. Mar. Cherb., p. 151.
Lithophyllum Lenormandi, *Rosanoff*, Rech., p. 85, pl. v., fig. 16 and 17; Pl. VI., fig. 1, 2, 3, and 5; *Solms*, Corall., p. 15; *Hauck*, Meeresalg., p. 267.

Hab. On rocks between tide-marks. Not uncommon. Berwick Bay, Sharper Head, Scremerston.

Good specimens of this species can only be obtained by splitting off fragments of the rock with the plant attached, for it is so closely adherent that it is almost impossible to remove it. The fronds form thin, pale-purplish or rose-coloured, obscurely zoned, chalky crusts of considerable size; at first nearly circular and crenate or lobed, but at length indefinite in outline, owing to many becoming confluent, the newer fronds overlapping the older. The conceptacles are numerous, hemispherical, much flattened with numerous orifices; the tetraspores zonate four-parted.

LITHOTHAMNION, PHIL.

LITHOTHAMNION POLYMORPHUM (Linn.) *Aresch.*

in *J. Ag.*, Spec. Alg. II., p. 524.—Millepora polymorpha, *Linn.*, Syst. Nat. I., p. 1285.

Descr. and Fig. Melobesia polymorpha, *Harv.*, Phyc. Brit., pl. 345.

Exsicc. Lithothamnion polymorphum, *Le Jol.*, Alg. Mar. Cherb., no. 11.

Syn. " " *Farlow*, Mar. Alg. New. Eng., p. 182; *Rosanoff*, Rech., p. 69; *Hauck*, Meeresalg., p. 271; *Le Jol.*, Liste, p. 151.

Spongites polymorpha, *Ktz.*, Spec. Alg., p. 699.

Millepora (Nullipora) informis, *Lamarck*.

Hab. On rocks in pools between tide-marks and in deep water. All the year. Common along the whole coast.

LITHOTHAMNION CALCAREUM (Ell. et Sol.) J. Ag.

Spec. Alg. II., p. 523.—*Millepora calcarea*, Ell. et Sol., Zooph., p. 129, t. 23, fig. 13.

Descr. *Melobesia calcarea*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 291.

Syn. *Spongites calcarea*, Ktz., Spec. Alg., p. 699.

Nullipora calcarea, Johnst., Brit. Lith., p. 540, t. 24, fig. 4, 5.

Hab. Cast ashore from deep water. Holy Island. "Obtained by dredging near the Fern Islands," Brady. Very rare.

Besides those mentioned above, another species of *Lithothamnion* occurs at Berwick, but I have been unable to ascertain to which species it belongs. It does not appear to agree in all respects with any of the described species of *Lithothamnion* known to me. Unlike *Lithothamnion polymorphum*, and most of the other species of that genus, the colour of the fronds is pink or reddish-pink and not purplish. The fronds are rather thick and covered with very numerous, simple or slightly branched cylindrical papillæ from 3 to 5 m.m. high. At first the fronds are circular and very rough with the numerous rudimentary papillæ, but they soon lose their circular form, and when old are very irregular in outline. The conceptacles are immersed; the tetraspores appear to be two-parted.

CORALLINA, LAMOUR.

(CORALLINE.)

CORALLINA OFFICINALIS, Linn.

Fauna Suecica, p. 539.

Descr. *Corallina officinalis*, Harv., Phyc. Brit.

Fig. „ „ Harv., l.c. pl. 222.

Exsicc. „ „ Crouan, Alg. Finist., no. 238; Le Jol., Alg. Mar. Cherb., no. 325.

Syn. „ „ Ktz., Spec. Alg., p. 705; J. Ag., Spec. Alg. II., p. 562.

Hab. Common in tide-pools along the whole coast. All the year.

ADDENDA.

TO FOLLOW DERMOCARPA SCHOUSBOEI, p. 231.

DERMOCARPA VIOLACEA, *Crn.*

Ann. Sc. Nat. 4th Ser. vol. ix., pl. 3, fig. 2A-D.

Descr. et Fig. *Dermocarpa violacea*, *Crn.*, l.c.; *Crn.*, Fl. Finist., p. 147; pl. 18, gen. 121; *Hauck*, Meeresalg., p. 517; *Bornet et Thuret*, Notes Algol. II., p. 77.

Hab. On *Fucus vesiculosus* near low-water mark. Jan.—Mar. Rare. Berwick Bay.

A rare and interesting species forming roundish or irregular spots from 3—5 mm. in diameter on *Fucus vesiculosus*, near low-water mark. The patches, which are visible to the naked eye, are larger than those of any of the other species of *Dermocarpa*, except *D. rosea*, found with us. The cellules are pear-shaped, and of a pinkish-violet colour.

DERMOCARPA ROSEA (Reinsch.)

Sphænosiphon roseus, *Reinsch*, Contrib. ad Algol. et Fungol., vol. I., p. 18, t. 26, fig. 4A-B et c.

Hab. On the stems of *Laminaria hyperborea*. Autumn and Winter. Rare. Berwick Bay.

Perhaps only a variety of *Dermocarpa violacea*, but the oval cellules are of a clear rose-pink colour, and form indefinitely expanded patches, often one or two inches in diameter, and not small round spots.

TO FOLLOW MYRIONEMA, p. 289.

ASCOCYCLUS, *Rke.*ASCOCYCLUS REPTANS (*Crn.*) *Rke.*

Algenflora der westlichen Ostsee, p. 44.—*Ectocarpus reptans*, *Crn.*, Fl. du Finist., p. 161, pl. 24, no. 158, figs. 3 et 4.

Descr. *Ectocarpus reptans*, *Crn.*, l.c. (non Kjellm.)

Fig. *Ascocyclus reptans*, *Rke.*, Atlas deutscher Meeresalgen, t. 15.

Hab. On *Chondrus crispus*, *Halidrys*, etc., between tide-marks. Autumn. Rare. Berwick Bay.

The primary filaments of this species spread horizontally, and, becoming united to one another, form disc-like or irregularly shaped expansions, usually composed of two layers of cells, from which arise the short, simple secondary filaments and shortly-stalked plurilocular sporangia. The articulations of the upright filaments are about as long as broad—those of the decumbent filaments a little longer.

TO FOLLOW PETROCELIS, p. 313.

ACTINOCOCCUS, Ktz.

ACTINOCOCCUS ROSEUS (Suhr.) Ktz.

Phycol. Gen., p. 177, tab. 45, fig. iv.—*Rivularia rosea*, Suhr. sec. Ktz.

Descr. et Fig. *Actinococcus roseus*, Ktz., l.c.

Syn. " " Ktz., Tab. Phycol. I., t. 31, fig. II.; Ktz., Spec. Alg., p. 534; *J. Ag.*, Spec. Alg. II., p. 489; *J. Ag.*, Epicr., p. 375; *Reinke*, Algenfl. der west. Ostsee, p. 21.

Hab. Forming nearly spherical masses on the fronds of *Phyllophora Brodiaei*. Rare. Berwick Bay, Burnmouth.

A true vegetable parasite, which is commonly taken for the fruit of *Phyllophora Brodiaei*. The frond is composed of two parts, one of which consists of large, nearly colourless, oval or irregularly shaped cells extending into the tissues of the infected plant; the other portion is composed of small, cylindrical, rose-coloured cells formed into filaments, which are densely packed together in a colourless jelly, constituting the cortical portion of the frond.

TO FOLLOW GELIDIUM, p. 346.

CHOREOCOLAX, REINSCH.

CHOREOCOLAX POLYSIPHONIÆ, *Reinsch*.

Contrib. ad Algol. et Fungol. I., p. 61, t. 49, fig. A.

Descr. *Choreocolax polysiphoniæ*, *Reinsch*., l.c.

Fig. " " *Farlow*, "On some new or imperfectly known Algæ of the United States." Bulletin of the Torrey Botanical Club, vol. XVI., no. 1, pl. 87, fig. 3.

Hab. Parasitical of *Polysiphonia fastigiata*. Tetraspores, Nov. 1889. Rare. Berwick Bay.

A smaller plant than *Harveyella mirabilis*, from which it appears to differ in structure; it was the first of this curious group of parasitical Florideæ described by Reinsch, and is consequently to be regarded as the type of the genus *Choreocolax*.

TO FOLLOW MELOBESIA PUSTULATA, p. 358.

MELOBESIA MACROCARPA, *Rosanoff*.

Recherch., p. 74.

Descr. *Melobesia macrocarpa*, *Rosan.*, l.c.

Fig. " " " t. 4, fig. 2-8 et 11-20.

Hab. On the roots and stipes of *Laminaria hyperborea*. Not uncommon.
Berwick Bay.

To the naked eye exactly like *Melobesia pustulata*, from which it is distinguished by its large two-parted tetraspores.

From the foregoing List it will be seen that the Marine Flora of Berwick, so far as it is at present known, contains 119 genera and 271 species. Of these the following 78 species have been added to the British List since the publication of *Phycologia Britannica* (1846-51.)

- Glœocapsa crepidinum.*
- Dermocarpa prasina.*
- „ *Schousboei.*
- „ *violacea.*
- „ *rosea.*
- Polycystis pallida.*
- Spirulina pseudo-tenuissima.*
- Oscillaria littoralis, Crn.*
- „ *lætevirens.*
- „ *percursa b. marina.*
- „ *colubrina.*
- „ *antliaria.*
- „ *natans.*
- „ *infectoria.*
- Microcoleus nigrescens.*
- Symploca fasciculata.*
- Lyngbya luteo-fusca.*
- „ *stragulum.*
- Isactis plana.*
- Calothrix crustacea.*
- „ *æruginea.*
- Microchæte grisea.*
- Mastigocoleus testarum.*
- Prasiola stipitata.*
- Enteromorpha minima.*
- „ *canaliculata.*
- Epicladia Flustræ.*
- Gomontia polyrhiza.*
- Ulothrix discifera.*
- „ *implexa.*
- Rhizoclonium Kochianum.*
- „ *rigidum.*
- Cladophora arctiuscula.*
- „ *hirta.*
- Codiolum gregarium.*
- Vaucheria Thuretii.*
- „ *sphærospora.*

- Phyllitis zosterifolia.
,, filiformis.
Dictyosiphon hippuroides.
,, mesogloia.
Stictyosiphon tortilis.
,, sub-articulata.
Ectocarpus terminalis.
,, Holmesii.
,, insignis.
Battersia mirabilis.
Sphacelaria cæspitula.
,, tribuloides.
,, plumigera.
Ralfsia spongiocarpa.
Ascocyclus reptans.
Elachista Grevillei.
,, Areschougii.
Chorda tomentosa.
Fucus platycarpus.
Porphyra coccinea.
,, leucosticta.
Diploderma miniata.
Peyssonnelia Harveyana.
Rhododermis elegans.
,, parasitica.
Hæmatophlæa Crouanii.
Petrocelis Henedyi.
Actinococcus roseus.
Cruoria pellita, *Fries.*
Hæmatocelis fissurata.
Chantransia secundata.
Rhodochorton intermedium.
,, membranaceum.
Phyllophora Traillii.
Nitophyllum reptans.
Choreocolax polysiphoniæ.
Harveyella mirabilis.
Melobesia corallinæ.
,, macrocarpa.
,, laminariæ.
,, Lenormandi.

The following species of *PHYCOLOGIA BRITANNICA* have changed name.

OLD NAME.	NEW NAME.
<i>Bangia elegans.</i>	<i>Goniotrichum elegans.</i>
<i>Hormospora ramosa.</i>	„ <i>ramosum.</i>
<i>Microcoleus anguiformis.</i>	<i>Microcoleus chthonoplastes.</i>
<i>Calothrix semiplena.</i>	<i>Symploca Harveyi.</i>
<i>Lyngbya ferruginea.</i>	<i>Lyngbya æstuarii.</i>
<i>Spermosira Harveyana.</i>	<i>Nodularia Harveyana.</i>
<i>Rivularia plicata.</i>	<i>Rivularia nitida, Ag. (non Harv.)</i>
<i>Schizosiphon Warreniæ.</i>	„ <i>Biasoletiana.</i>
<i>Calothrix hypnoides.</i>	<i>Calothrix pulvinata.</i>
<i>Ulva lactuca.</i>	<i>Monostroma Grevillei.</i>
<i>Enteromorpha Cornucopiæ.</i>	} „ „
<i>Ulva Linza.</i>	<i>Enteromorpha Linza.</i>
<i>Ulva latissima.</i>	<i>Ulva lactuca, Linn.</i>
<i>Conferva melagonium.</i>	<i>Chætomorpha melagonium.</i>
„ <i>ærea.</i>	„ <i>ærea.</i>
„ <i>linum.</i>	„ <i>linum.</i>
„ <i>tortuosa.</i>	„ <i>tortuosa.</i>
<i>Lyngbya Cutleriæ.</i>	<i>Ulothrix isogona.</i>
<i>Conferva Youngana.</i>	„ <i>isogona.</i>
<i>Lyngbya flacca.</i>	} „ <i>flacca.</i>
„ <i>Carmichælii.</i>	
<i>Cladophora uncialis.</i>	<i>Clad. lanosa, var. uncialis.</i>
„ <i>refracta.</i>	„ <i>albida, var. refracta.</i>
<i>Chorda lomentaria.</i>	<i>Scytosiphon lomentarius.</i>
<i>Myriotrichia filiformis.</i>	{ <i>Myriotrichia clavæformis.</i>
	„ <i>var. filiformis.</i>
<i>Elachista velutina.</i>	<i>Ectocarpus velutinus.</i>
<i>Ectocarpus siliculosus.</i>	„ <i>confervoides.</i>
„ <i>sphærophorus.</i>	<i>Isthmoplea sphærophora.</i>
„ <i>littoralis.</i>	<i>Pylaiella littoralis.</i>
<i>Sphacelaria plumosa.</i>	<i>Chætopteris plumosa.</i>
<i>Myrionema clavatum.</i>	<i>Ralfsia clavata.</i>
„ <i>punctiforme.</i>	} <i>Myrionema vulgare.</i>
„ <i>strangulans.</i>	
<i>Leathesia tuberiformis.</i>	<i>Leathesia difformis.</i>
<i>Mesogloia virescens.</i>	<i>Castagnea virescens.</i>

<i>Laminaria bulbosa.</i>	<i>Saccorhiza bulbosa.</i>
„ <i>digitata.</i>	<i>Laminaria hyperborea.</i>
„ <i>var. stenophylla.</i>	„ <i>digitata.</i>
„ <i>Phyllitis.</i>	{ „ <i>saccharina.</i>
	{ „ <i>var. phyllitis.</i>
<i>Zonaria parvula.</i>	<i>Aglaozonia parvula.</i>
<i>Fucus canaliculatus.</i>	<i>Pelvetia canaliculata.</i>
„ <i>nodosus.</i>	<i>Ascophyllum nodosum.</i>
<i>Porphyra vulgaris (partim).</i>	<i>Porphyra linearis.</i>
<i>Bangia ceramicola.</i>	<i>Erythrotrichia ceramicola.</i>
<i>Cruoria pellita.</i>	<i>Petrocelis cruenta.</i>
<i>Hildenbrandtia rubra.</i>	<i>Hildenbrandtia rosea.</i>
<i>Callithamnion Turneri.</i>	<i>Spermothamnion Turneri.</i>
„ <i>virgatulum.</i>	<i>Chantransia virgatula.</i>
„ <i>Daviesii.</i>	„ <i>Daviesii.</i>
„ <i>Rothii.</i>	<i>Rhodochorton Rothii.</i>
„ <i>floridulum.</i>	„ <i>floridulum.</i>
„ <i>sparsum.</i>	„ <i>sparsum.</i>
„ <i>plumula.</i>	<i>Antithamnion plumula.</i>
„ <i>spongiosum.</i>	<i>Callithamnion granulatum.</i>
<i>Ptilota sericea.</i>	<i>Ptilota elegans.</i>
<i>Ceramium botryocarpum.</i>	{ <i>Ceramium rubrum.</i>
	{ „ <i>var. proliferum.</i>
<i>Iridæa edulis.</i>	<i>Sarcophyllis edulis.</i>
<i>Furcellaria fastigiata.</i>	<i>Fastigiaria furcellata.</i>
<i>Rhodymenia laciniata.</i>	<i>Callophyllis laciniata.</i>
<i>Gymnogongrus plicatus.</i>	<i>Ahnfeltia plicata.</i>
<i>Hypnea purpurascens.</i>	<i>Cystoclonium purpurascens.</i>
<i>Rhodymenia bifida.</i>	<i>Rhodophyllis bifida.</i>
„ <i>cristata.</i>	<i>Euthora cristata.</i>
<i>Delesseria sanguinea.</i>	<i>Hydrolathum sanguineum.</i>
<i>Gelidium corneum.</i>	{ <i>Gelidium crinale.</i>
„ <i>var. crinale.</i>	
<i>Chrysomenia clavellosa.</i>	<i>Chylocladia clavellosa.</i>
„ <i>rosea.</i>	„ <i>rosea.</i>
<i>Polysiphonia pulvinata.</i>	<i>Polysiphonia sertularioides.</i>
<i>Laurencia cæspitosa.</i>	<i>Laurencia hybrida.</i>
<i>Lithocystis Allmanni.</i>	<i>Hapalidium confervoides.</i>
<i>Melobesia membranacea.</i>	<i>Melobesia Lejolisii.</i>
„ <i>polymorphum.</i>	<i>Lithothamnion polymorphum.</i>

Artificial Key to the Genera of Berwick Marine Algae.

Adapted, with his sanction, from PROF. FARLOW'S KEY TO THE
MARINE ALGÆ OF NEW ENGLAND.

NOTE.—“As far as possible, the characters used are those which can be seen by the naked eye, but in many cases the generic distinctions absolutely depend on microscopic characters. It should of course be understood, that the key is entirely artificial, and does not represent the true botanical relations of our Genera,” moreover, in many cases the characters given refer only to the species found at Berwick.*

- | | | | |
|---|--------|-----------------------|----|
| 1. Colour, bluish or purplish green †; Algæ of small size, usually more or less gelatinous | ... .. | (Cyanophyceæ.) | 5 |
| 2. Colour, grass green. | ... .. |  | 17 |
| 3. Colour, from yellowish brown to olive green or nearly black. | ... .. |  | 25 |
| 4. Colour red or reddish purple, rarely blackish, in fading becoming at times greenish. | ... .. | (Rhodophyceæ.) | 50 |
| 5. Cells arranged in filaments. | ... .. |  | 7 |
| Cells in colonies, but not forming filaments. | ... .. |  | 6 |
| 6. Cells grouped in twos or some multiple of two. | | <i>Glæocapsa.</i> | |
| Cells solitary, small, oval, imbedded in a gelatinous substance forming colonies of indefinite shape. | ... .. | <i>Polycystis.</i> | |
| Cells large, wedge-shaped or spherical, united into hemispherical or irregularly shaped colonies. | ... .. | <i>Dermocarpa.</i> | |
| 7. Filaments ending in a hyaline hair. | ... .. |  | 15 |
| Filaments not ending in a hair. | ... .. |  | 8 |
| Plant parasitic in the chalky shells of molluscs, forming bluish-gray stains on them. | ... .. | <i>Mastigocoleus.</i> | |
| 8. Filaments provided with heterocysts. ‡ | ... .. |  | 9 |
| Filaments destitute of heterocysts. | ... .. |  | 11 |

* The genera *Ascocyclus*, *Actinococcus*, and *Choreocolax*, which were added to the Berwick flora after this List was in the printer's hands, are not included in this Key.

† *Glæocapsa crepidinum*, *Goniotrichum elegans*, *Dermocarpa violacea*, and *D. rosea*, are exceptions, the first is yellowish brown, the others purplish pink.

‡ “Besides the ordinary cells, we find in many species of *Nostochineæ*, a second kind of cell, distinguished from the others by its glassy appearance and its yellowish or brownish rather than bluish-green colour. They are called *heterocysts*, and are found sometimes scattered amongst the other cells, sometimes at the end of the trichomata, their position often serving as a generic character.”

- | | | | | |
|------|---|-----|-----|--------------------------------|
| 9. | Filaments with a thin gelatinous sheath. | ... | ... | 10 |
| | Filaments without a sheath, spores next to the heterocysts. | ... | ... | |
| | ... | ... | ... | <i>Sphærozyga.</i> |
| 10. | Filaments erect, forming bluish-gray patches on shells. | ... | ... | <i>Microchete.</i> |
| | Filaments decumbent, forming dark-green slimy layers on mud. | ... | ... | |
| | ... | ... | ... | <i>Nodularia.</i> |
| 11. | Filaments with a gelatinous sheath. | ... | ... | 13 |
| | Filaments without a gelatinous sheath. | ... | ... | 12 |
| 12. | Filaments spirally twisted. | ... | ... | <i>Spirulina.</i> |
| | Filaments not spirally twisted. | ... | ... | <i>Oscillaria.</i> |
| 13. | Filaments branched. | ... | ... | <i>Goniotrichum</i> (in part.) |
| | Filaments simple. | ... | ... | 14 |
| 14. | Filaments free. | ... | ... | <i>Lyngbya.</i> |
| | Filaments adherent in meshes | ... | ... | <i>Symploca.</i> |
| | Filaments united in bundles and surrounded by a general gelatinous sheath. | ... | ... | <i>Microcoleus.</i> |
| 15. | Filaments free. | ... | ... | <i>Calothria.</i> |
| | Filaments imbedded in a dense mass of jelly. | ... | ... | 16 |
| 16. | Filaments nearly parallel, fronds forming a thin expansion. | ... | ... | <i>Isactis.</i> |
| | Filaments diverging from the base of the hemispherical or somewhat flattened fronds. | ... | ... | <i>Rivularia.</i> |
| 17. | Fronds unicellular. | ... | ... | 18 |
| | Fronds multicellular. | ... | ... | 19 |
| 18. | Cells small, ovoidal, prolonged into a long, root-like process at the base. | ... | ... | <i>Codiolum.</i> |
| | Cells large, filamentous, pinnately branching. | ... | ... | <i>Bryopsis.</i> |
| | Cells very long, cylindrical, with irregular or sub-dichotomous branches, spores large, solitary, in special lateral or terminal cells. | ... | ... | <i>Vaucheria.</i> |
| 19. | Fronds tubular. | ... | ... | <i>Enteromorpha.</i> |
| | Fronds membranaceous. | ... | ... | 20 |
| | Fronds filamentous. | ... | ... | 22 |
| 20. | Fronds minute, seldom more than a quarter of an inch high, distinctly stalked, cells quadrate. | ... | ... | <i>Prasiola.</i> |
| | Fronds more than quarter of an inch high, not distinctly stalked. | ... | ... | 21 |
| 21. | Fronds composed of a single layer of cells. | ... | ... | <i>Monostroma.</i> |
| | Fronds composed of two layers of cells. | ... | ... | <i>Ulva.</i> |
| 22. | Fronds simple. | ... | ... | 23 |
| | Fronds branching. | ... | ... | 24 |
| 23. | Small algæ, filaments soft and flaccid. | ... | ... | <i>Ulothrix.</i> |
| | Rather coarse algæ, filaments more or less rigid, often twisted together. | ... | ... | <i>Chaetomorpha.</i> |
| 24.* | Branches small and root-like. | ... | ... | <i>*Rhizoclonium.</i> |
| | Branches distinct. | ... | ... | <i>Cladophora.</i> |

* The genera *Gomontia* and *Epicladia*, which have been added to our Berwick list since this key was compiled, should be inserted here. The first named belongs to the class of perforating algæ, and grows in the chalky shells of molluscs, forming green stains on them. The fronds are

25. Fronds irregularly globose, hollow, gelatinous, sporangia at the base of the coloured cortical filaments. *Leathesia*.
 Fronds cup-shaped, fruit in very long strap-shaped receptacles.
 *Himanthalia*.
 Fronds forming crusts or expanded pellicles. 26
 Fronds small, tufted, composed of a dense basal portion and an outer portion composed of free filaments. *Elachista*.
 Fronds tubular, unbranched. 27
 Fronds filamentous. 29
 Fronds membranaceous, expanded. 41
26. Fronds membranaceous, lobed, attached by fibres issuing from its lower surface, lobes free, fruit in external patches, unilocular sporangia unaccompanied by paraphyses. *Aglaozonia*.
 Fronds coriaceous, not attached by fibres, adherent throughout, fruit in external spots, unilocular sporangia accompanied by paraphyses.
 *Ralfsia*.
 Fronds minute, thin, formed of a basal horizontal layer of cells and short vertical filaments, between which the sporangia are borne.
 *Myrionema*.
27. Fronds simple, hollow throughout, substance thin. 28
 Fronds simple, cylindrical, somewhat cartilaginous, with numerous diaphragms. *Chorda*.
28. Sporangia densely covering the surface. *Scytosiphon*.
 Sporangia external in scattered spots. *Asperococcus*.
29. Fronds capillary, branching, formed of a single row of cells. (Monosiphonous.) 30
 Fronds cylindrical, solid or occasionally becoming partially hollow with age. 32
30. Primary branches creeping in the substance of other algæ, secondary and fructifying ramuli erect. *Streblonema*.
 Primary and secondary branches erect. 31
31. Both unilocular and plurilocular sporangia formed by transformation of special branches, plurilocular sporangia in the form of pod-like branches, unilocular globose, sessile or shortly stalked. *Ectocarpus*.
 Both forms of sporangia formed from the cells in the continuity of the branches and not by a transformation of special branches.
 *Pylaiella*.
 Filaments partly polysiphonous, unilocular sporangia partly immersed in the frond, plurilocular sporangia formed by direct transformation of the cells of the branches. *Isthmoplea*.

branched and radiate from a central point, the spores are borne in large sporangia, formed by the transformation of the joints. The sporangia at length become free and are capable of growing by themselves and forming new plants. The latter genus forms green patches on *Flustra*, the filaments being placed so close together that the plants appear to be almost membranous, in this respect resembling *Rhodochorton membranaceum*. The reproduction is by means of zoospores formed in the filaments.

32. Fronds slimy, composed of an axial layer of elongated filaments and a distinct cortical layer of short, horizontal filaments. ... 33
 Fronds composed of elongated internal cells, which become smaller at the surface. ... 35
 Fronds, at least in the younger portions, formed of cells of nearly uniform length, arranged in transverse bands, without any proper cortical layer. ... 38
33. Fronds tough and dense. ... *Chordaria*.
 Fronds soft and flaccid. ... 34
34. Outer cells of cortex producing plurilocular sporangia. *Castagnea*.
 Outer cells of cortex not producing plurilocular sporangia. *Mesoglaea*.
35. Fronds traversed by a central filament formed of large cylindrical cells placed end on end, sporangia inconspicuous, formed from the cortical cells. ... *Desmarestia*.
 Fronds destitute of distinct axial filament. ... 36
36. Fronds simple, more or less beset with pellucid hairs, spores formed from the cortical cells. ... *Litosiphon*.
 Fronds branching. ... 37
37. Unilocular sporangia covering the surface in dense patches, at maturity projecting above the surface of the frond. ... *Stictyosiphon*.
 Unilocular sporangia scattered, immersed. ... *Dictyosiphon*.
38. Fronds minute, ending in a hyaline hair, monosiphonous below, densely beset above with very short branches, between which are the sporangia. ... *Myriotrichia*.
 Fronds ending in a large, single cell, the cells of the lower part giving off descending filaments, which become interwoven and form a false cortex. ... 39
39. Rhizoidal filaments few and limited to the base of the plant, branching irregularly pinnate. ... *Sphacelaria* (in part).
 Rhizoidal filaments numerous. ... 40
40. Fronds distichously pinnate, sporangia on the secondary pinnate branches. ... *Sphacelaria* (in part).
 Fronds distichously pinnate, sporangia on short special branches arising from the cortical layer of the main axis. *Chætopteris*.
 Branches whorled. ... *Cladostephus*.
41. Fronds simple or occasionally proliferous. ... 42
 Fronds branching. ... 46
42. Midrib present. ... *Alaria*.
 Midrib wanting. ... 43
43. Fronds thin, sessile. ... 44
 Fronds thick and coriaceous, distinctly stipitate. ... 45
44. Sporangia densely covering the surface of the frond. *Phyllitis*.
 Sporangia immersed or partly immersed in the frond, in scattered spots. ... *Punctaria*.
45. Cryptostomata present, stem flat, arising from a hollow warty base. ... *Saccorhiza*.
 Cryptostomata wanting, stems cylindrical, attached by branching rhizoids. ... *Laminaria*.

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|--|-----|-----|-----|-----|-----|-------------------------|
| 46. Midrib present. | ... | ... | ... | ... | ... | <i>Fucus</i> . |
| Midrib wanting. | .. | ... | ... | ... | ... | 47 |
| 47. Fronds destitute of air-bladders. | ... | ... | .. | ... | ... | 48 |
| Fronds furnished with air-bladders. | .. | ... | ... | ... | ... | 49 |
| 48. Fronds thick and coriaceous, channelled, fruit in terminal receptacles. | ... | ... | ... | ... | ... | <i>Pelvetia</i> . |
| Fronds thin, membranaceous, dichotomously branched, spores external, scattered singly or in spots over the surface of the frond. | ... | ... | ... | ... | ... | <i>Dictyota</i> . |
| 49. Air-bladders, simple, immersed in the frond, fruit on short, lateral branches. | ... | ... | ... | ... | ... | <i>Ascophyllum</i> . |
| Air-bladders stalked, with numerous diaphragms, fruit terminal. | ... | ... | ... | ... | ... | <i>Halidrys</i> . |
| 50. Fronds calcareous. | ... | ... | ... | ... | ... | 51 |
| Fronds not calcareous. | ... | ... | ... | ... | ... | 53 |
| 51. Fronds erect, filiform, articulated. | .. | ... | ... | ... | ... | <i>Corallina</i> . |
| Fronds thin, horizontally expanded. | ... | ... | ... | ... | ... | 52 |
| Fronds thick, horizontally expanded, but rising at intervals into irregular protuberances. | ... | ... | ... | ... | ... | <i>Lithothamnion</i> . |
| 52. Fronds semi-transparent, composed of a single layer of cells. | ... | ... | ... | ... | ... | <i>Hapalidium</i> . |
| Fronds opaque, composed of more than one layer of cells. | ... | ... | ... | ... | ... | <i>Melobesia</i> . |
| 53. Fronds horizontally expanded, crustaceous or membranaceous. | ... | ... | ... | ... | ... | 54 |
| Fronds erect or umbilicate. | ... | ... | ... | ... | ... | 57 |
| Plant parasitic on Rhodomela, forming irregularly shaped convex masses on the stem of the host-plant. | ... | ... | ... | ... | ... | <i>Harveyella</i> . |
| 54. Fronds cartilagino-membranaceous or membranaceous. | ... | ... | ... | ... | ... | 55 |
| Fronds gelatino-coriaceous. | ... | ... | ... | ... | ... | 56 |
| 55. Spores in external warts (nemathecia) composed of slender parallel filaments on which are borne the antheridea, cystocarps, and tetraspores, nemathecial filaments united by a gelatinous substance, tetraspores cruciate. | ... | ... | ... | ... | ... | <i>Peyssonnelia</i> . |
| Spores accompanied by free, curved, stiff paraphyses, in external spots (sori), tetraspores cruciate. | ... | ... | ... | ... | ... | <i>Rhododermis</i> |
| Spores in cavities sunk in the frond, tetraspores zonate. | ... | ... | ... | ... | ... | <i>Hildenbrandtia</i> . |
| Spores in external nemathecia, tetraspores zonate. | ... | ... | ... | ... | ... | <i>Hæmatophlæa</i> . |
| 56. Fronds parenchymatous below, but above formed of loosely united simple filaments, tetraspores cruciate, formed in the filaments. | ... | ... | ... | ... | ... | <i>Petrocelis</i> . |
| Fronds formed of loosely united, simple or slightly branched filaments, tetraspores lateral, zonate. | ... | ... | ... | ... | ... | <i>Cruoria</i> . |
| Fronds composed or loosely united, dichotomously branched filaments, bent horizontally below. | ... | .. | .. | .. | ... | <i>Hæmatocelis</i> . |
| 57. Fronds tubular. | ... | ... | ... | ... | ... | 58 |
| Fronds filamentous or slightly compressed. | ... | ... | ... | ... | ... | 59 |
| Fronds membranaceous. | ... | ... | ... | ... | ... | 73 |
| 58. Fronds brownish-purple, thick, soft, hollow, fruit immersed in the frond, tetraspores cruciate. | ... | .. | ... | ... | ... | <i>Dumontia</i> . |

- Fronds red, slender, compressed or cylindrical, branches much contracted at the base, often constricted at intervals into pseudo-articulations, tetraspores tripartite in depressed cavities. *Chylocladia*. Fronds purple or nearly black, small, constricted at intervals into pseudo-articulations, tetraspores zonate immersed in the substance of the frond. *Catenella*.
59. Fronds formed of a single row of cells, (monosiphonous) without proper cortex. 60
Fronds with distinct axial and cortical layers. 66
60. Fronds monosiphonous throughout. 61
Fronds composed below of a single row of cells, becoming densely cellular above, spores formed by the division of any of the cells, filaments simple, gelatinous, dark purple. *Bangia*.
Fronds composed of a single row of cells above, but below with a false cortex formed by the growth of descending filaments, which proceed either from the base of the branches or from the cells of the main filaments. 65
Frond formed of large cells placed end on end, with bands of smaller cells at the nodes, in some cases the nodal cells extending in a thin layer over the internodal cells. *Ceramium*.
61. Spores (as far as known) formed directly from the contents of any of the cells. 62
Spores on short pedicels, distinct, undivided. *Chantransia*.
Spores cruciate on short, congested branches near the apices of the erect filaments. Fronds composed of prostrate, creeping filaments from which arise erect, dichotomous, or irregularly branched filaments. *Rhodochorton*.
Tetraspores and cystocarps present. 63
62. Filaments simple, forming a fine web over other algae. *Erythrotrichia*.
Filaments dichotomously branching, minutely tufted. *Goniotrichum*.
63. Fronds formed of prostrate filaments, from which arise erect pinnate filaments, cystocarps terminal, involucrate, spores irregularly grouped, not surrounded by a common gelatinous envelope when mature. *Spermothamnion*.
Cystocarps terminal or lateral, spores irregularly grouped at maturity, covered by a general gelatinous envelope. 64
64. Fronds dichotomous, formed of delicate vesicular cells, tetraspores in whorls at the joints, involucrate. *Griffithsia*.
Fronds dichotomous, or pinnate, branches alternate, tetraspores tripartite, scattered on the branches, solitary or aggregated, cystocarps lateral, usually binate. *Callithamnion* (in part).
Branches opposite or whorled, tetraspores cruciate. *Antithamnion*.
65. Fronds capillary or bushy, densely branching, cortications confined to the larger branches, and evidently formed of vein-like descending filaments. *Callithamnion* (in part).
Fronds compressed, ancipital, branches pectinate-pinnate, covered everywhere, except at the tips, by polygonal areolated cells. *Ptilota*.

66. Fronds nearly black, substance dense. 67
 Fronds rose-red or purple, rather succulent or gelatinous, sometimes capillary. 69
67. Fronds dichotomous, cylindrical, cartilaginous. 68
 Fronds pinnate or pinnatifid, compressed or cylindrical, cartilaginous, purple or yellowish, tetraspores tripartite, immersed in the substance of the frond, cystocarps external, sessile. *Laurencia*.
 Fronds filiform, rigid, wiry, irregularly branching, forming dense, intricate bundles. *Ahnfeltia*.
 Fronds cylindrical or slightly compressed, cartilaginous, sparingly and irregularly branching, composed of an inner layer of very large angular colourless cells, and a cortical layer of small coloured cells, tetraspores cruciate immersed in the frond, cystocarps external, sessile. *Gracilaria*.
 Fronds small, compressed, pinnate, forming small tufts, spores borne on an axial placenta in the enlarged terminal branches. *Gelidium*.
68. Root an expanded disc, spores borne in external flesh-coloured warts, tetraspores cruciate immersed in the frond. *Polyides*.
 Fronds attached by branching rhizoids, cystocarps, and tetraspores immersed in the swollen tips of the branches, tetraspores zonate. *Fastigiaria*.
69. Cystocarps immersed in the fronds. 70
 Cystocarps external, ovate or urceolate, fronds traversed by a distinct central filament or siphon. 71
70. Fronds gelatinous, composed internally of a dense mass of slender longitudinal filaments, which give off short, corymbose, lateral branches, which form the cortex, spores in an irregular mass. *Glæosiphonia*.
 Fronds soft, succulent, consisting of an internal layer of slender longitudinal filaments, and a cortex composed of roundish polygonal cells, which become smaller towards the surface. *Cystoclonium*.
71. Fronds rose-red, stems slender, ramuli simple, subulate, acute, apices not involute, cystocarps stalked, alternating with the ramuli. *Bonnemaisonia*.
 Fronds dark-red, much branched, rather robust, superficial cells small, polygonal, irregularly placed, apices of branches not involute, tetraspores in the young branches or palmately divided receptacles (stichidia.) *Rhodomela*.
 Fronds purple or brownish-purple, superficial cells quadrate, apices of the branches strongly involute, tetraspores in swollen pod-like branches (stichidia). *Bostrychia*.
 Fronds purple or red, occasionally blackish, either throughout or at least in the young branches articulated, the articulations longitudinally striate. 72
72. Fronds brown-red (turning bright-red in fading) main stems corticated with irregular cells, densely clothed with bright red hairs, young branches naked, tetraspores in swollen pod-like branches (stichidia). *Dasya*.
 Fronds purple or dark-red, tetraspores borne in the young branches. *Polysiphonia*.

73. Fronds gelatinous, but firm, spores in marginal bands or spots. 74
 Fronds cartilaginous or rigid membranaceous, dense. ... 75
 Fronds delicate or somewhat coriaceous. ... 77
74. Fronds composed of a single layer of cells. ... *Porphyra*.
 Fronds composed of two layers of cells. ... *Diploderma*.
75. Fronds composed internally of oblong polygonal cells, with a cortical layer of minute, coloured cells, arranged in a vertical series, fronds dark red or purplish, stipitate, stipes expanding into a rigid membranaceous, flat, simple, or cleft lamina proliferous from the disc or margins. ... *Phyllophora*.
 Fronds cartilaginous, formed internally of a layer of longitudinal slender anastomosing filaments which divide corymbosely at the surface. ... 76
76. Fronds plane or slightly channelled. ... *Chondrus*.
 Fronds beset with small papillæ, in which the spores are borne. *Gigartina*.
77. Midrib present. ... 78
 Midrib wanting. ... 80
78. Fronds rose-red, leaf-like. ... 79
 Fronds dark brownish-purple, narrow, dentate, midrib scarcely distinct ... *Odonthalia*.
79. Fronds laciniate or much branched, often proliferous from the midrib, cystocarps hemispherical, sessile on the midribs or veins, tetraspores in spots on the frond or sometimes in small lateral leaflets. *Delesseria*.
 Fronds bright-red, stalked, stems cylindrical, branched, expanding into oblong, simple leaflets entire at the margins, fruit borne on the old denuded midribs, (in winter), cystocarps spherical, stalked, tetraspores in small special leaflets. ... *Hydrolapathum*.
80. Fronds narrow much divided. ... 81
 Fronds palmately or dichotomously divided. ... 82
 Fronds undivided, dull-red, thick (carnoso-coriaceous) shortly stipitate, stipe compressed, gradually expanding into an obovate, undivided frond, fruit immersed in the frond. ... *Sarcophyllis*.
81. Branches alternately secund in threes or fours, the lowest undivided and spine-like, the upper pectinate on the upper side, tetraspores zonate. ... *Plocamium*.
 Fronds subflabellate, upper divisions divaricately toothed, tetraspores cruciate. ... *Euthora*.
82. Fronds very thin and delicate. ... 83
 Fronds thickish, subcartilaginous or submembranaceous. ... 84
83. Fronds rose-red or purplish, margins entire, usually more or less veined, tetraspores cruciate in scattered spots (sori). *Nitophyllum*.
 Fronds dark-red, ciliate, tetraspores zonate. *Rhodophyllis*.
84. Fronds purplish-red, broadly palmate or dichotomous, sometimes repeatedly laciniate into narrow segments, margins proliferous, tetraspores cruciate in patches. ... *Rhodymenia*.
 Fronds bright-red, broadly palmate or dichotomously divided, margins when in fruit curled and fringed with minute cilia, in which the cystocarps are immersed, tetraspores cruciate in patches. *Callophyllis*.

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EXPLANATION OF THE PLATES.

PLATE VII.

- Fig. 1.—POLYCYSTIS PALLIDA (Ktz.) Farlow, on SPHACELARIA RADICANS, Harv. Natural size.
 „ 1A.—Portion of the same. 250 diam.
 „ 2.—Portion of a filament of RHODOCHORTON ROTHII (Eng.Bot.) Naeg., with a. DERMOCARPA PRASINA, Bornet, and b. DERMOCARPA SCHOUSBOEI, Bornet, epiphytic. 250 diam.
 „ 3.—SPIRULINA PSEUDO-TENUISSIMA, Crn. 650 diam.
 „ 4.—SPIRULINA TENUISSIMA, Ktz. 650 diam.
 „ 5.—ENTEROMORPHA CANALICULATA, Nob. Natural size.
 „ 6.—Portion of same. 75 diam.
 „ 7.—Section of frond of same. 75 diam.
 „ 8.—ULOTHRIX DISCIFERA, Kjellm. 75 diam.

PLATE VIII.

(Reprinted from the Plate in the Linnean Society's Journal.)

PHYLLITIS FILIFORMIS, Batters: Figs. 1-6.

- Fig. 1.—Plant natural size. Figs. 2-3.—Roots, 150 diam. Fig. 4.—Portion of Frond with plurilocular sporangia, 150 diam. Fig. 5.—Section of Frond, 150 diam. Fig. 6.—The same, 250 diam.

ECTOCARPUS HOLMESII, Batters. Figs. 7-16.

- Fig. 7.—Plant natural size. Fig. 8.—The same, 50 diam. Figs. 9-12.—Specimens of plurilocular sporangia, 120 diam. Figs. 13-15.—Unilocular sporangia, 150 diam. Fig. 16.—Distorted cell, 150 diam.

RALEFSIA SPONGIOCARPA, Batters. Figs. 17-21.

- Figs. 17, 18.—Plant natural size, *in situ*. Fig. 19.—Sporangium and paraphysis, 250 diam. Fig. 20.—Branching vertical filament, 250 diam. Fig. 21.—Terminal sporangium, 250 diam.

RALEFSIA CLAVATA, *Crouan*. Fig. 22.

Fig. 22.—Sporangium and paraphysis for comparison with foregoing, 250 diam.

N.B.—In the original explanation of this Plate the magnifications were very much over-estimated.

PLATE IX.

BATTERSIA MIRABILIS, *Rke*. Figs. 1-4.

Fig. 1.—Plant natural size. Figs. 2, 3, 4.—Filaments and sporangia, 100 diam.

SPHACELARIA CÆSPITULA, *Lyngb*. Figs. 5-8.

Fig. 5.—Plant natural size. Fig. 6.—The same, 10 diam. Fig. 7.—Plurilocular sporangia, 100 diam. Fig. 8.—Plurilocular sporangium, 200 diam.

PLATE X.

SPHACELARIA PLUMIGERA, *Holmes*. Figs. 1-3.

Fig. 1.—Plant natural size. Fig. 2.—Longitudinal section of branch, to show secondary branches and unilocular sporangia, 50 diam.

3.—Transverse section of stem; 50 diam.

CHÆTOPTERIS PLUMOSA, *Ktz*. Figs. 4-6.

Fig. 4.—Plant natural size. Fig. 5.—Section of stem to show special fruit branches and plurilocular sporangia, 50 diam. Fig. 5A.—Special fruit branch and plurilocular sporangia, 50 diam. Fig. 6.—Transverse section of stem with unilocular sporangia, 50 diam. Fig. 6A.—Special fruit branch and unilocular sporangia, 150 diam.

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Fig. 8.—Section of Froud with plurilocular sporangia, 120 diam.

PLATE XI.

RHODODERMIS ELEGANS, *Crn.*, var. *polystromatica*, *Batters.*
Figs. 1A and 1B.

Fig. 1A.—Section of Frond to show paraphyses and tetraspores,
100 diam. Fig. 1B.—Portion of same. 500 diam.

RHODODERMIS PARASITICA, *Batters.* Figs. 2A. and 2B.

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4.—Section of Frond to show favellæ. 50 diam.

CRUORIA PELLITA, *Fries.* Fig. 5.

Fig. 5.—Section of Frond to show favellæ, 50 diam.

PHYLLOPHORA TRAILLII, *Holmes.* Figs. 6-11.

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E R R A T A.

- Page 225, 6th line from bottom, for *Oder* read *Order*.
- „ 233, 2nd line from top, for (*Chauv.*) read *Chauv.*
- „ 259, 14th line from top, for *subseniplex* read *subsimpler*. 7th line from bottom, for *vaucheriformis* read *vaucheriaeformis*.
- „ 277, 15th line from top, delete comma after *centre* and insert one after *twice*.
- „ 280, 19th line from top, delete comma after *Filaments*.
- „ 287, 20th line from top, for *Strömfelt* read (*Strömfelt*). 6th line from bottom, for *Myrionemata* read *Myrionemateæ*.
- „ 297, 5th line from bottom, for *Norwegica* read *Norvegica*.
- „ 304, 9th line from bottom, for *A curious &c.* read *This curious &c.* 8th line from bottom, delete comma after *maritimus*.
- „ 311, 15th line from bottom, delete comma after *or* and place one after *long*. 14th line from bottom, insert a comma after *large*.
- „ 316, 13th line from bottom, for *Crouani* read *Crouanii*.
- „ 319, 14th and 16th lines from bottom, for *variable* read *variabile*.
- „ 329, 6th and 13th lines from bottom, for $\varphi\mu\chi\omicron\varsigma$ read $\varphi\chi\omicron\varsigma$
- „ 334, 8th line from bottom, delete comma after *laminis*.
- „ 347, 4th line from top, delete *consequently*. 5th line from top, insert a comma after *known*.
- „ 356, 14th line from bottom, for *Lithociptis Allmani* read *Lithocystis Allmanni*.
- „ 357, 15th and 17th lines from bottom, for *Lefolisii* read *Lejolisii*.
- „ 361, 8th line from bottom, for *Rke.* read *Magnus*.

Natural History Notes. By THE PRESIDENT.

IN the summer of 1887 a pair of Common House Martins (*Hirundo urbica*) built in the upper landing of the nursery staircase at Coupland Castle. This landing has the nursery door on one side, a bedroom door on the other, and in front another landing a couple of steps down, in which was a window by which the birds entered. The nest was in the corner formed by the bedroom door and the back wall. We left our house on June 24th and went away, the hen sitting at that time on eggs. The nursery had been in constant and the bedroom in frequent use. The lady who rented the house after we left promised to look after the birds, and kept her word; the young birds were hatched on the landing and flew away.

The same summer a pair of Water-Hens (*Gallinula chloropus*) built their nest in a tree on my property between Akeld Bridge and the Foxholes Pool. Of course the young ones must have perished had not my keeper watched his opportunity and put them into the water as soon as fit to swim. As it was, one of them fell out and died.

In the summer of this year my workmen were putting a strong stone-facing into the bank of the Foxholes Pool in the river Glen, when we found a Pied Wagtail's (*Motacilla Yarrelli*), nest in the bank they were preparing to cover up. All the time the men were working, wheeling and laying in stones, the hen sat on her eggs, and the cock flew out and in, though when the facing was finished, only a small aperture was left. Nevertheless the pair outstayed the work, and brought out their young ones.

Note on the occurrence of the Redfooted Falcon (Falco vespertinus, L.) in Roxburghshire. By WILLIAM EVANS, F.R.S.E., etc.

It will doubtless interest the Members of the Club, to know that a fine example of this rare bird was obtained near Swinside, a few miles from Jedburgh, on the 21st June, 1888, and taken the following day to Mr Robert Hope, Bird-stuffer, Jedburgh, who subsequently gave me all the facts concerning it, and kindly forwarded the specimen for exhibition at the meeting of the Royal Physical Society, Edinburgh, held 20th Feb. 1889. Since then it has been secured by the Museum of Science and Art, Edinburgh, where it is now permanently located. It is a male, probably just about a year old, passing into the dress of maturity, and thus in a most interesting phase of plumage. Speaking in a general way, the prevailing colours are :—upper parts, dark bluish grey ; under parts, rich reddish brown, mixed with light bluish grey, the whole interspersed here and there by a few of the barred and striped feathers of immaturity. The bird had been feeding on beetles, for Mr Hope tells me he found its stomach filled with the remains of these insects.

The Redfooted Falcon, it may be mentioned, winters in Africa and is a summer visitor to the temperate regions of Europe and the adjacent parts of Asia. In the central and eastern parts of the Continent it is abundant, but as we proceed westwards its numbers rapidly diminish, and its visits become more irregular. According to the latest authority, Saunders' Manual of British Birds, only about 20 examples have been recorded for the British Islands, and these mostly from the southern counties of England. Northwards, the captures become more and more uncommon ; and I am aware of but two authentic occurrences in Scotland, prior to the capture of the specimen which forms the subject of this note, namely :—one, a female, killed in Aberdeenshire in May, 1866, as mentioned in Gray's Birds of the West of Scotland, and a young female in first plumage ; shot near Kinghorn, Fife, on 20th Sept., 1880, and preserved in the Edinburgh Museum.

New Plants for Northumberland. By JAMES HARDY.

1. GERANIUM PYRENAICUM, L.

IN Messrs Tate and Baker's "New Flora of Northumberland and Durham, p. 304," *Geranium pyrenaicum* is given as a Ballast-hill plant from the banks of the Tyne. Dr. P. W. MacLagan, of Berwick, writes me of date August 4th, 1888, accompanying a specimen, that he found it near Lowlynn. From the wet season it was very much *drawn up* among the grass. "It is usually regarded as an alien, but at all events it is not likely to be an escape." It is of old occurrence in the Edinburgh Flora, see Dr. Gréville's Flora of Edinburgh, p. 150, no. 6 ; and Prof. Balfour, and Mr Sadler's Flora, p. 29, and earlier authorities.

2. SCHEUCHZERIA PALUSTRIS, L.

Capt. Norman, R.N., calls my attention to the following communication which I put on record, as it may catch the eye of some of our observers in the bleak marshy spots on the Northumbrian coast, some of which are probably imperfectly explored. The plant to which attention is called is a small one, the companion of *Carices* and even *Sphagnum*, and may not always be in blossom. "To the Editor of the Standard:—Sir, I have before me a dried specimen of *Scheuchzeria palustris*, which was gathered four or five years ago in Northumberland. For obvious reasons I refrain from specifying the exact locality, but it was growing within a few hundred yards of the sea. I cannot say whether the plant is still there; it will, however, be interesting to Botanists to hear of a fresh locality."

T. H. ARCHER-HIND.

Combes Fishacre House, Newton Abbott,
February 12th, 1889.

This plant is figured in Smith's edition of the *Flora Lapponica*, t. 10, f. 1, and described at p. 103. It was first discovered in 1807 in Britain, by the Rev. J. Dalton, in a marsh called Lakeby Car, near Borough-bridge, Yorkshire. (Smith's *English Flora*, II., p. 199.) Since then it has been found on Thorne Moor, near Doncaster; and at Bomerepool near Shrewsbury. In 1833, Mr Duff gathered it at Methven near Perth. (Hooker's *Brit. Flora*, 4th Edit., p. 153.) "A very rare plant in Switzerland, more plentiful in Sweden, Denmark, Norway, and Lapland." (Sir J. E. Smith.)

Increased spread of Pseudococcus Fagi. By JAMES HARDY.

If carefully looked for, the Coccus of the beech tree (*Pseudococcus Fagi*) will probably be found to have a wider distribution, than hitherto attributed to it. At Shawdon Gardens, on June 2nd, 1888, I noticed it on the beech hedge of the garden at the south east corner where it has been apparently not of long continuance; and again on 25th of the same month it was present in small quantity on the beech hedge of Mr Hindmarsh's garden at Ilderton. When at Dunstan Hill, county Durham, after the middle of August, it was found that numbers of old trees, but not every one, in the policy were infested; and also the younger trees in the Rev. R. H. Williamson's grounds at Whickham, in the same county, where I have previously recorded it from the Wishing Well Dean, which is not a mile distant. On September 11th, when on my way to Canonbie, I had to wait at St. Boswell's station, and availed myself of the occasion to walk up the side of the Tweed to Ravenswood. Here the *Pseudococcus* was visible on the bark of some avenue-like trees, where the walk entered the Ravenswood grounds. After its presence at Maxton-House, lower down the Tweed, I expected to find it elsewhere on Tweedside. Its area at present is very limited in extent at both places.



HEATHPOOL.

Notices of Heathpool, in the parish of Kirknewton, Northumberland. By JAMES HARDY.

THE history of Heathpool is almost entirely interwoven with that of its proprietors, and is little more than an enumeration of documents. It is very much involved, and the lines of separation between the possessions of the different land-holders cannot now be ascertained. Originally it belonged to the Barony of Muschampe, but owing to a more than usual proportion of heiresses, and from grants to new or substitutionary incomers, it was at length much broken up.

1. ROBERT DE MUSCHAMPE AND HIS LINEAGE.

It is impossible to enter upon the history of the entire Barony, but so far as it relates to the portion of it, to be at present considered, it will be sufficiently understood if I quote with some emendations, the late Mr Dickson's "Pedigree" of the last male who held the entire Barony, which is annexed to his privately printed "Pipe Rolls of Northumberland," Newcastle, 1854, and afterwards in lithograph. The subsequent owners will then be indicated in chronological order. Most of them are mere shadows to us, but among them are also to be found some of the great men of their age.

"ROBERT DE MUSCHAMPE, the last heir male of the Barony of Muschampe left three daughters, and died 34, Henry III., 1249, (Dng. Bar. 557), Pipe Rolls, pp. 24, 44, 100, 109. Relief, 78.

1. CECILIA, the eldest daughter married the only son of Odonell de Ford, a little before 34, Henry III. She left one child only, Isabella de Ford, who was 15 years old in 1249, and married to Adam de Wigton, who was then aged 13 or 14, she died without children, and on the inquisition at her death in 1254, she held one third of her father's Barony. Her aunt, Isabella de Huntercumbe, was heir to one moiety, and her two cousins Muriella and Maria to the other.

2. MARGERY, the second daughter (sometimes called Malicia) was aged 24 in 1249. She married the Earl of Stratherne. She was dead in 1254, and left two infant children. 1. MURIELLA aged 10 in 1254, who married the Earl of Mar, and died without children in 1291. 2. MARIA (also called Margery) was aged 6 in 1254. She married Nicholas de Graham. She became heir to her sister, as appears on the inquisition on her death. She had a son, John de Graham.

3. ISABELLA, the third daughter was 24 years old in 1254. She married William de Huntercumbe, and was aunt to Isabella de Ford, and became heiress of one half of her possessions. William died 55, Hen. III., 1270. Their son Walter de Huntercumbe, was then of full age. He died without children, 6, Edw. II., 1312.**

Robert de Muschampe's mother, Matilda, was a Scottish heiress, and had been a widow previous to her marriage with his father, her Scottish property being Halsington, in Eccles parish, held of the Earl of Dunbar, which was afterwards bestowed on Melrose. Robert de Muschampe became early influenced with the religious sympathies of his age, and was a most generous benefactor to the church. It is in a charter of his conveying to the monks of Melrose, the lands of Trolhope (or Trowup) in the territory of Hethpol, that the name of this place first occurs in record. The charter has much local interest, but "Trollop" manor would require a special chapter. It was granted in behoof of the souls of his lords, Henry, Richard, and John, Kings of England, and the souls of his father and mother, and of his ancestry, and for the salvation of his lord King Henry, and that of himself and of his wife, and of all his successors. Among the great lay witnesses to the deed were Patrick, Earl of Dunbar, and his son Patrick, Roger de Merlae, Roger Bertram, Odonell de Forde, Robert de Akeld and his son William, Robert and Roger de Hameldon (Humbleton), Robert de Manners, Hugo de Morwic, Sampson de Conpland, etc.† The final settlement was in 1223, in St. Nicholas Church, Newcastle, but the first deed was of previous date, for in 1222, Pope Honorius II., by a bull had to satisfy the Prior and Canons of Kirkham, to whom the tithes of Trolhope belonged, that these should be duly paid at the Church of St. Gregory, at Newton, in Glendale.‡ The corn and hay tithes of Kirknewton and Heathpool still belong to the vicarage of Newton in Glendale.||

Robert de Muschampe obtained as the reward of his benefactions, burial in Melrose Abbey in 1250.§

According to the "Testa de Nevill," which is of various dates from and during the time of Henry III. and later, Robert de Muschampe, then alive, holds in chief, among numerous other estates "Hetpol." From the

* Dickson's Pipe Rolls, p. 155.

† Liber de Melros., pp. 268-9.

‡ Liber de Melros., pp. 268-9; pp. 271-2.

|| Hodgson's Northd., III., ii., 152.

§ Chronicle of Melrose, p. 205 (Stevenson's Church Historians of England.)

same Robert, Odonell (the father) holds Ford, Crucum, Kymmerston and the 4th part of Hetpol by a fief of ancient feoffment. From him also Stephen de Coupland held there, one half bovate of land by the 30th part of one fief of new feoffment. There were three socage tenants; Thomas de Hetpol holds two bovates of land in Hetpol for 8 shillings; Ranulph and Patric hold the moiety of Hetpol for 8 shillings.*

By the same venerable document we are informed that Odonell de Ford, junior, father of one of the subsequent heiresses was then dead.†

Ranulf de Hethpole, just mentioned, was one of the jury on the extent of the land which belonged to Robert de Muschampe, taken under a mandate, 34 Henry III., 1249.‡

By the inquisition on the death of Isabella de Ford by mandate dated 12 Feb., 39 Henry III., 1254, taken at Wooler, "She had also in Hetpol 4 farmers, who pay by the year 4s. 4d.; and the third part of a meadow which is worth 2s. 2½d., and the third part of the tallage of the drengs which amounts to 4s., and the service of John de Hetpol, estimated at 16d. annually.¶ Her heirs were Isabella de Huntercumbe, 24 years old, and two daughters of the Earl of Stratherne, Muriella 10 years, and Marjoria 6 years." §

In the division of her lands in Hethpool they were thus apportioned:—

FIRST HALF.

"Also she had in Hetpol, two farmers, to wit, Michael le Vacher (Cow-herd) and Henry the son of Gilis, and they render by the year two shillings and threepence halfpenny, and the moiety of the third part of a meadow, which is worth by the year, twelve pence and a farthing, and the moiety of the third part of the tallage of the drengs, which is worth by the year, two shillings; and of the service of John de Hetpol, which is worth by the year, eight pence."

SECOND HALF.

"Also she had in Hetpol, two farmers, to wit, Randoff (Ranulph already mentioned), the son of Michael and El the son of Michael. And they render by the year, two shillings and three pence halfpenny; and the moiety of the third part of a meadow which is worth, by the year, thirteen pence and a farthing; and the moiety of the third part of the tallage of the drengs, which is worth by the year, two shillings; and of the service of John de Hethpole, which is worth by the year, eight pence." ¶

Shortly after this period, some entries in the Pipe Rolls of Henry III., reveal some incidents not altogether pleasing among the rural population

* Testa de Nevill, pp. 384; 388.

† *Ib.*, p. 388.

‡ Ford Tithe Case (Printed) p. 223.

¶ *Ibid.*

§ *Ibid.*

¶ Ford Tithe Case, MS.

at Heathpool. In 1262, 46 Henry III., Adam de Gesemue being sheriff; for unjust detention, whatever that signifies, Eva, who was the wife of Stephen de Hecpol, was fined half a mark, which fine she does not pay till after several applications in 1272.* It is possible that Stephen de Hecpol, was Stephen de Coupland of the "Testa," a free land-holder by military service. In 1271, 55 Henry III., when Wischard de Charrun was sheriff, William Heron, previously sheriff, remains indebted for £6 14s. 8d., which he received from the land of Robert de Hecpol, who was hanged; and 33s. 4d. for fine of a year and waste of the land of the said Robert.† This punishment might be for a murder, which entitled the King "to his year and a day," and then the land may have reverted to the oldest male heir, according to the Kentish adage,—

"Father to the bough,
Son to the plough."

This might be the same John de Hetpol of 1254, whose services were of the fixed value of 16d. annually, or a descendant, for that date was seventeen years bygone.

On May 16th, 1291, the homage of Muriella, wife of William late Earl of Mar, and daughter and heiress of the deceased Margery, Countess of Stratherne, daughter of Robert de Muschampe, was ordered to be taken. Edward I. signs the writ himself, being then at Norham.‡ She only survived a few months her accession to her hereditary demesnes. The Inquisition post Mortem was held at Wooler, before Thomas de Normanville, Nov. 23, 1291. The writ of *Dien clausit extremum* is dated at Worcester, 12th Nov., 19 Edw. I. The vill of Hetpole paid by the year of rent of assise, *i.e.*, the rent of the Freeholders and ancient Copy holders, 109 shillings.|| The jurors declared that Maria, the wife of Nicholas de Graham, sister of Muriella, was her nearest heir, and was of the age of 40 and more. The sheriff, after reckoning for half a year's income of her land delivered it by writ 20 Jan. 1292, to Nicholas de Graham and Maria his wife. Hetpole is written "Hokepol."§

In 1292, by a plea "de Quo Warranto" before H. de Cressingham and his associate Justices at Newcastle-on-Tyne, "in crastinis Sci Hillarie," 21, Edw. I., Nicholas de Grame being summoned to show by what warrant he claimed to have the amendment of the assise of beer broken (malt) in Beleford, Lowyk, Wesingham, (Easington), Hethepol and Hedirslaw, without licence and will of the King, proved an uninterrupted usage by him and his ancestors.¶

Two inquisitions were held on the death of Nicholas de Graham, taken under mandates dated respectively, 4th April and 4th May, 1306, 34 Edw. I.

* Mag. Rot. Pip., cols. 264 etc., to 296 (Hodgson, Part III.)

† Id., col. 292.

‡ Stevenson's Historical Documents, Scotland, II., p. 229.

|| Ibid, p. 258.

§ Ib., p. 230.

¶ Ford Tithe Case, Printed, p. 224.

The first was held at Wooler, 18th April, 1306. He held the lands not as his own, but of the heredity of Maria de Graham, his wife. The termly payments of the tenants were, Martinmas and Pentecost. This is what relates to Hethpol:—Also at Heythepol there is a certain separate pasture, its value by the year, 16d.; also divers free tenants “forins” [who perform external or warlike services] and pay at said terms, 9s. 10d.; also 2 cottars who pay rent at the same terms, 4s.; also a certain brewery (bracina), worth by the year, 5s.* The second inquisition by jury was held at Bamburgh “on the Thursday next before the feast of Pentecost,” 1306, when it was declared that the right of Robert de Muschampe descended to Margery and Isabella, “et uni heredi,” which I will not follow Mr Dickson, in translating “sole heirs,” and of the same Margery came Maria, who was the wife of the foresaid Nicholas de Graham, who was the daughter and heir of the foresaid Margery of the moiety of the said barony. Husband and wife were not infefted conjointly. He held nothing in the said barony, except through the heredity of his wife. John de Graham, their son, was of the age of 28.†

What became of John de Graham is not known. We are now entering upon some inexplicable proceedings on the part of Maria de Graham, which created considerable contention afterwards, and introduced for a short period a new race, the Meynells, as holders of her paternal estates, who were eventually superceded by another family, the Darcies. The story is to be learned only imperfectly from the legal documents.

II. THE MENILLS OR MEYNILLS AND THE DARCIES.

An Inquisition ad quod Damnum, 8 Edward II., 1315, held at Newcastle-on-Tyne on the Saturday next after the feast of St. Matthias the Apostle, in Lent, determined that it was not to the prejudice of the King and others that he should permit Maria, daughter of Margery de Muschaunce, that she should concede that moiety of the manor of Wollour, Hethpol, Hederslaw, Lowyk and Belford, held by her, to Thomas de Hybernia and his heirs; to re-enfeoff the said Maria for her life; after her death to remain to Nicholas de Meynill and his heirs; but in defect of lineal heirs, to remain to Nicholas, son of Lucie, daughter of Robert de Thwenge and his heirs; remainder to the right heirs of Nicholas de Meynill.‡

At the same date in pursuance of the above inquisition, Nicholas de Menill paid a fine of £10 for a licence to possess the moiety, after the death of Maria, daughter of Margery de Muschaunce.¶ In one of the deeds, Hethpol is called “Hegpol.”

* Ford Tithe Papers, Printed, p. 227. I may now state that here, as in several other quotations, I have translated and abridged from the original Latin documents.

† *Ib.*, p. 227.

‡ Ford Tithe Case, Printed, pp. 227-8.

¶ 4 Rot. Pat., 8 Edw. II.; Originalia, 8 Edw. II., Ford Papers, p. 228, and MS. Documents.

Nicholas, son of Lucy, was the natural son of Nicholas de Menill by Lucy, daughter of Robert de Thwenge.

Thomas de Hibernia was obliged after raising a plea to acquiesce.*

This settlement led to further dispute. Nicholas de Menill died 26th April, 15 Edw. II., 1321, without lawful heir of his body; and Maria, daughter of Margery de Muschaunce, died on the 18th October, 17 Edward II., 1323, and the Escheator prevented Nicholas, the son of Lucy, from entering upon the manors, and took them into the King's hands, 17 Edw. II.

By a writ of pardon for acquiring lands holden of the King in chief, of which the date is not given, no. 52, Ford Papers in MS., temp. Edw. III., it appears that Nicholas Menille by his charter did give and grant to Nicholas son of Lucy and Alice his wife, daughter of William Ros de Hamelak,† certain lands (Cheviot Forest) which he had of the gift of Nicholas de Huntercombe, and also the moiety of the manors held by Maria de Graham, and that in consequence of Nicholas son of Lucy, having taken forcible possession of them, they were seized into the King's hands.

Meantime, Nicholas son of Lucy de Thwenge had died. The King on the requisition of John Darcy le Fitz, who had interposed, pardoned the trespass and granted to the said Alice and her heirs begotten by the said Nicholas son of Lucy, the moieties of the said manors to hold of the King's gift. John Darcy, however, had unauthorisedly taken the management of the lands himself. The Placita of 18 Edward III., 1344, show that Elizabeth, daughter of Nicholas, son of Lucy, brought a writ of intrusion against John Darcy le Fitz, and that the King desired him to be ejected, and Elizabeth to have seizin, but being under age, the King took the minor into his own hands.‡

By a writ, 27 Edward III., (1352-53) the King appoints John de Fenwick, Robert de Reymes, and Adomar de Atheles to take into the King's hands the moiety of the manors of Wollore, Hethpole, etc., till the legitimate age of the heiress, Elizabeth, daughter of Nicholas de Meynill (Nicholas, son of Lucy,) deceased.||

John Darcy ultimately married the heiress. On the 27 Edw. III., 1352-3, the King gave licence to John Darcy de Kynath and Elizabeth his wife, that they may enfeoff Thomas de Swynford, chivaler, and John de Chartereye in the manor of Yarum, and the moieties of the Wooler barony, including Hethpole, with power to re-enfeoff the foresaid John Darcy and Elizabeth his wife, and their heirs in their possessions, to revert to the King if there are no legitimate heirs. This is to all purposes a grant to a

* 5 Placita de Banco, 8 Edw. II., MS. Documents.

† Mr Dickson mistakingly, *Hist. Ber. Nat. Club*, iv., p. 21, calls her Alice Graham, only child of John Graham, son and heir of Nicholas de Graham; and that she married "Nicholas, Baron de Meinil," and that "they had an only child, Elizabeth, Baroness de Meinil."

‡ Ford Tithe Case, Printed, pp. 229, 230.

|| Hodgson's *Hist. of Northd.*, Part III., ii., p. 318.

new family.* There is nothing on the face of the abridgement that we have of a limitation to heirs male.

The Inquisition, 42 Edw. III., 1367-68, on the death of Elizabeth Menill, widow of John Darcy, and at her death wife of Peter de Mauley, states that she held Belford, Lowick and Heatherslaw, and that Philip Darcy was her son and heir. Philip was the second son, John the eldest brother having died without issue.†

The inquisition on the death of Philip Darcy was taken by mandate 28 April, 22 Richard II., 1399, and held at Newcastle-upon-Tyne. He left a son, John Darcy, aged 22 and more, as his heir. At the period of his decease, the manors of Hethepolle and Heddereslaw were of no value, owing to their having been wasted by the Scots.‡

In 23 Richard II., 1400, an assignment was made of the dower of Elizabeth, wife of Philip Darcy, knight.|| Their son John Darcy had died on or before 12th Dec., 13 Hen. IV., 1411, and she herself died on the Thursday "in crastino sci Laurencii," last past, 13 Henry IV., 1412. Her moiety of the third part of the manor of Heithpulle, was valued at 13d. per annum. The moiety of the Forest of Cheviot was valueless, being wasted by the Scots, enemies of the lord the King. Philip her grandson, son of John, was her heir, and was then more than 15 years of age.§ John's son, Philip, being in minority, the lands came into the King's hands.

In 7 Henry V., 1418-19, an inquest was held on the death of this Philip Darcy, son of John Darcy; the jurors say that his father John Darcy, held his possessions in Northumberland, of King Henry IV. in chief, and "that he, the said Philip Darcy was a minor at the death of his father, and also at his own death." He left 2 daughters, Elizabeth, 2 years old, and Margery, 1 year old.¶

According to the Inquisition, P.M. of Margaret, widow of Sir John Darcy, taken by mandate dated 32 Henry VI., 1454, at Morpeth on the Monday before the feast of All Saints, she held in dower of the heritage of Elizabeth, wife of Sir James Strangeways, and of Margery, wife of Sir John Conyers, the third part of two parts of the moiety of the manors of Wollor, Hethpole, Hedereslaw, etc. These three and the Forest of Cheviot were worth nothing on account of being wasted by the Scots. The said Margaret, on the day on which she died, was seized as of fee of one acre of land in Hethpole, which was tenanted of John Galby by fealty only, its value by the year being four pence. The said Elizabeth Strangeways and Margery Conyers are her next heirs, daughters and heirs of Philip Darcy, son and heir of the said Margaret. Elizabeth was then more than 36 years of age; and Margery more than 32. The said Margaret died on the Saturday next after Ascension Day, last past.**

* Hodgson, *ubi. sup.*, p. 323.

† Ford Papers, MS.

‡ Ford Tithe Case, Printed, pp. 230-1; Hodgson, III., ii., p. 261.

|| Ford Tithe Case, Printed, p. 231.

§ *Ib.*, p. 231-2.

¶ Ford Tithe Case, MS.

** Ford Tithe Case, Papers, Printed, p. 237.

In 10 Henry VI., 1431, there is a document on the partition of the possessions of Philip Darcy between his two daughters and heirs, Elizabeth Strangeways and Margery Conyers.

In 36 Henry VI., 1457, (35 Hen. VI., in Hodgson,) the Inquisition on the death of Eleanor, widow of Philip Darcy, finds that she held in dower, two parts of two parts of the moiety of the manors of Lowick, Wooler, Hethpol, and Heatherslaw, of the heritage of her daughters, Elizabeth, wife of James Strangeways, and Margery, wife of John Conyers.*

An inquisition, 20 Edward IV., 1479-80, after the death of Thomas Ilderton, finds that Thomas Ilderton, Thomas Grey, James Strangeways, and John Conyers, hold Coupland, and 100 acres of land in chief as part of the barony of Muschamp, together with the manors of Wooler, (blank, probably Heathpol) Lowick, Belforth, Etail, Ford, Crookham and Kimmerston by the service of 4 Knight's fees.†

Hereafter we lose track of the rights of the descendants of Strangeways and Conyers. The Darcy claims had been kept up in that family till 1539, as we learn from the following document, wherein the King's right to the manors was attempted to be awakened after a lengthened abeyance.

In the Exchequer Easter Term, 10 James I., 1611, a plea was initiated by the Attorney General against Sir Ralphe Graye, Knt., Sir William Selbie, Knt., Claudius Forster, and Thomas Carr, Esquires, requiring them to show cause why in prejudice of the King's rights they held the manors of Wollore, Hethpoole, Belford, Yesington, Yarm, (sic) Lowick, and Hederslaw in Co., Northd. It was stated that Edward III., in the 46th year of his reign, (1371-2) granted these manors to Philip, Lord Darcy, and his heirs male, and that they descended to John, Lord Darcy who was attainted of high treason in the 31st year of K. Henry VIII. (1539) and the lands were forfeited to his Majesty. The manors, it was alleged, were "wrongfully taken," to the disinheritance of his Majesty by the parties accused, "by conolor of some conveyance supposed to be made by the said John Lord Darcy before his said attainder, to the ancestors of the said Sir Ralphe Graye, &c.," or to some other whose estates they claim to have. They were summoned before the Court of Exchequer to exhibit their rights and titles. The result is not given.‡

III. HUNTERCOMBE, LILLEBURNE, COUPLAND, ARUNDELL, HETON,
AND OTHERS.

Isabella de Huntercombe, youngest daughter of Robert de Muschampe, succeeded along with her husband to one third of the Barony, and afterwards to her share of the portion of Isabella de Ford. It did not remain long in the family.

* Ford Tithe Case, Papers, MS., Nos. 70 and 72.

† Ford Tithe Case, MS. Papers. Here Mr Dickson's date, 1461, is wrong. B.N.C.P. iv., p. 22. For more about the Conyerses, see his "Address," l.c.

‡ Extract in writing in Ford Tithe Case.

In 1292, by a plea of *de Quo Warranto* before H. de Cressingham and other justices on an occasion already referred to, Walter de Huntercumbe (son of William de Huntercumbe and Isabella) was summoned to show what claim he had to warren in all his demesnes in Chevelyngham, Beleford, Wesyngton, Hethrepol, and Lowyck; also corrections of the assise of beer broken in the said vills and in Hedrislaw, without licence. And Walter came and showed that the present King in the 19th year of his reign (1288) granted to Walter and his heirs free warren in all his demesne lands in Northumberland. And the amendment of the assise of beer broken (malt) he claims from antiquity: he and his ancestors had held it from time immemorial. The jury held that he had used the said right of warren reasonably, and had the amendment of the assise of malt by immemorial usage, and that he punished transgressors by fine and not judicially. And that the said Walter has not "*judicialia*" etc., neither had his ancestors.*

Walter de Huntercombe died 6 Edw. II., 1312, seized of a moiety of the Barony of Muschampe. His heir to this section of his property was his nephew, Nicholas Newbaud, who shortly afterwards changed his name to Huntercombe, and alienated by licence, 20 Edw. II., 1316, the whole of that property. To Nicholas Menille he granted the Forest of Cheviot; and to John de Lillebourne, the reversion of the moiety of his manors of Belford, Yesington, Lowick, and Hethpole, which Ellen, widow of Walter de Huntercombe held for life in dower.†

In 25 Edw. III., 1352, John de Coupland (the capturer of David II.,) and Joane his wife, were licenced to acquire from Sir John de Lillebourne, Knight, 3 Knight's fees, and among others, his manors of Woller, Hethpol, and Heddon, and the moiety of the manor of Wooler.‡ In 46 Edw. III., 1371-72, the King gave licence to Joane, widow of John de Coupland, to grant, reserving the rents for her lifetime, among others the manor of Wooler to Richard Arundell, son of the Earl of Arundell, remainder to Sir John Arundell, Knight. By the inquisition on the death of John Arundell, 3 Richard II., 1379, it appears that he had granted shortly before his death to his brother, the bishop of Ely and others, three Knight's fees, apparently the whole of the above land that John de Coupland had acquired. The moiety of the manor of Wooler, with Trollope is comprehended in this arrangement, but Heathpol is not in the extract from the Tower Records, nor in the *Inq. post Mortem*, II., p. 251.||

The de Hetons, a Cumberland family, who succeeded the Huntercombes in Chillingham, held also a portion of Hethpole. In 8 Ric. II., 1384, Thomas de Heton of Chillingham held the half of Hethpole vill and demesne.§

* Ford Tithe Case, Printed, p. 224, 225.

† *Inq. ad quod Damnum*, 20 Edw. II., no. 21, Pat. 20, Ed. II., no. 25; Ford Tithe Papers.

‡ MS. Tower; Ford Tithe Papers.

|| Ford Tithe Papers, in MS., nos. 17, 18, 19.

§ *Inq.*, p. M. II., p. 67, Hodgson III., ii., p. 255.

In 12 Ric. II., 1388, in the deed of the partition of the lands of Alan de Heton—that great accumulator of land—Hethpole occurs.* In 1 Hen. IV., 1399, Sir Henry de Heton still held lands in Hethepole.† In 13 Hen. IV. (1410) Elizabeth, eldest daughter of Sir Alan de Heton, (who had three daughters,) held the third part of the vill of Hethepole as of the barony of Muschamp.‡ She appears to have died 2 Hen. VI., 1423, possessed of the third part of Hethepole.|| What became of her share has not been traced.

IV. HERON.

William Heron of Hadiston, the inquest on whose death was 25 Edw. I., 1258, acquired Ford, Crookham and Kimmerston, by right of his wife, Mary, daughter of Odinell de Ford, senior; and these manors before her death he conveyed to his son Gilbert. His wife, Mary, claimed a third part of Ford, Crookham, Kimmerston and Hethpol, 28 Edw. I., 1300.§ Her father, Odinell de Ford, held one fourth of Hethpol of the barony of Muschampe.

On the 14th Edward III., 1341, besides the grant to William Heron, son of Roger to castellate his mansion of Ford, he had free warren among other places in his manors of Ford, Crookham, Kimmerston, Hethpol, etc.¶ A deed, 31 Edward III., (1356-7) shows that Thomas and Robert Herons in the Court at Newcastle-upon-Tyne, recovered their seizin in a plea against Thomas Sampson and others of 6 bovates of land, and four score acres of meadow, with pertinents in Heathpole.** By an inquisition on the death of William Heron, by virtue of a mandate dated 6 Feb., 6 Hen. VI., 1427, held at Alnwick, 18th June, he was seized in his demesne as of a fief, of two parts of the fourth part of the manor of Hethpole; this, as well as Hedderslaw and Bollesdon, being held of the heirs of Philip Darcy, Knight. John Heron, 10 years old, was his nearest heir.†† In 18 Henry VI., 1439, Henry, Earl of Northumberland, and others were appointed to have the custody of his land, during the minority of his son. He died seized of two parts of the fourth part of the manor of Hethpol, then waste, amounting to 60 acres of land and four score acres of pasture, valued at 6s. 8d. by the year.‡‡

The Documents which we chiefly follow, end here.

* Hodgson, III., p. 255.

† *Ib.*, p. 262.

‡ Hodgson's Northd., III., ii., p. 267.

|| *Ib.*, p. 275.

§ Landsdowne MSS., Brit. Mus. Ford Tithe Papers, no. 12, MS.

¶ From the Tower. Printed Papers, Ford Case, p. 229.

** Hodgson's Northd., III., ii., p. 324.

†† Ford Tithe Case, Printed, p. 232.

‡‡ *Ibid.*, pp. 233, 236.

V. MANNERS.

In an inquisition "ad quod Damnum," 19 Edw. III., 1344-45, the jurors say that Sir Robert Manners holds certain other lands, besides those about which the inquiry was instituted, in Etal, Heatherslaw, Brankston, Heathpol and Wellesdon, (Bollesdon), to the value of 100 marks of John de Lilburn, William Heron and Gerard de Wyderington by homage and fealty only.* In Calendar Rot. Pat., 27 Edw. III., (1352-3) is an exemplification of a fine between Robert de Maners, plaintiff, and Hugh Soteville, defender, concerning the manor of Etale, and a messuage in Hethpole specially entailed on the said Robert, and others of his name.†

By inquisition 29 Edw. III., 1353-4, Robert de Maners held the whole of Etal Manor, and divers lands in Hethpole, Tossan, and Alnewyk.‡

The family of Manners had been gradually increasing their holdings among the Border hills, and when the curtain next rises from off Heathpol, they appear as its chief owner, and had erected a small fortified tower for its protection against the persistent ravages of the thievish Scottish Borderers. In 1416 the "Turriss de Hethepulle" belonging to Robert Manores, had Thomas Haisandes or Hazon as its custodier.||

VI. GREY.

In 1473-74, William Badeleye de Hethepule held lands in Hethpule in Warke barony, according to Inq., p. M., 18 Edward IV.§

How most of the township passed into the hands of the Grey family cannot at present be ascertained. It is thus described in the Border Survey of 1541. "The townshipp of Hethepol conteyneth vj husband lands, new plenyshed, and thereyn ys a lytle stone house or pyle, which ys a great releyffe to the tenants thereof. And the most parte of thys toune is of th' inherytaunce of Sr Roger Graye, and other ffreholders have pr cell of the same."¶

In the Border Watch, instituted in 1552, Hetheugh (or Hetha) was to be watched by Hethpool "with one man on the day."**

In the Feodary's Book for 1568, it was held by Thomas Grey de Chillingham, then in minority, as successor to his father, Sir Ralphe Graye, along with Yeveringe, Reveleye, Doddington, Fentone, &c.†† Robert Clavering "de et in Calloley and Yetlington" had at the same period land in Hethpoole.‡‡

* Ford Tithe Papers, no. 57, MS.

† Hodgson's Northd., III., ii., p. 373.

‡ Ib., i., p. 78.

|| C. J. Bates, Border Holds, p. 17.

§ Hodgson, III., ii., p. 278.

¶ C. J. Bates, l.c., p. 32.

** Nicolson's Border Laws, p. 217.

†† Hodgson's Northd., Part III., iii., p. 63.

‡‡ Ib., p. 70.

In 1570, it and most of Glendale, and the country even to the coast at Bednell, and Sunderland were spoiled by a Scottish raid. The English wardens reported that among the towns and steads wasted and pillaged by the Scots before the 10th of March:—"Learmouth, Mindrum, Belem, (?) Hethepoole, Ewart, Humbleton, West Newton and Lanton were spoiled and partly burned."*

The principal ownership continued for at least a century, in the Grey family. In the Book of Rates for 1663, as Lord Grey's share he was rated for Land and Mill at £70; Mr Arthur Grey's part was £20, and the Mill 10 shillings; Mr Richard Forster's proportion was perhaps too small to enter.†

At a short distance above Heathpool Linn is what was Heathpool Mill and a piece of land adjoining it, which long remained attached to Chillingham estate as a remnant of the Grey property. The old over-shot mill wheel blackened with age, mosses and *Confervæ*, which so picturesquely caught the eye of the visitor among the green pastures and scattered trees and bushes on the S.E. bank of the Colledge, has now disappeared. The occupant of the mill had the right of cutting hay or grass on the Heathpool estate, but it became inconvenient, and the piece of land near it was given in exchange for this privilege. Not being a profitable holding, there was only an annual tenancy of the place. It was sold by Lord Tankerville in 1874 to Mr Alexander Thompson of Kirknewton.

VII. REED, RODDAM, BLACKETT, CARLYLE, COLLINGWOOD, &c.

The Reeds probably acquired Heathpool by purchase. They were a branch of the Reeds of Troughend, who were the chieftains of this ancient and once powerful clan. Their history may more or less be ascertained by reference to Hodgson's *Hist. of Northumberland*, Part II., Vol. i., pp. 133-138, Burke's *Landed Gentry*, 2nd Edit., s. v., "Reed of Heathpool and Hoppen," p. 1010. Of Percy or Percy Reed of Troughend, the tragic fate is told in the notes to Robert Roxby's "*Lay of the Reedwater Minstrel*," Newcastle, 1809; and from it Sir Walter Scott in his "*Rokeby*" (1812) borrowed his allusion to the tale.‡ The "tragic song," "the Death of Percy Reed," which James Telfer, the poetic schoolmaster of Saughtree, Liddesdale, alleged he took down from the chanting of an old woman who lived at Fairloans at the head of Kalewater, is to be found in Richardson's *Table Book*, *Legendary Div. II.*, pp. 361-9.||

* Cotton MS. Calig. C. II., in Morton's *Monastic Ann. of Teviotdale*, p. 42.

† Hodgson.

‡ Scott's *Poetical Works*, Royal 8vo. Edit., pp. 295, 352.

|| Music to this song, I recently received from Mr Edward J. Wilson, Saughtree school, and now of Bolton school, East Lothian. Mr Wilson sung it to the accompaniment of the harmonium, when I visited him at Saughtree in June, 1889. The tune has only one part. I may here mention that James Telfer was one of my correspondents in times long by past.

Burke commences his pedigree of the Reeds of Hoppen, with George Reed, Esq. of Heathpool, living in 1743. In a note he states that "in Kirknewton churchyard there is a tomb to Gabriel Reed of Heathpool, A.D. 1696, also to Miss Mary Reed, 11 Oct., 1696, and to Lancelot Reed, 14 June, 1709."

In a MS. compiled by the late Mr William Dickson of Alnwick, now in Mr W. T. Hindmarsh's possession, entitled "Records of Sessions of Justices," under 1702, there is mention of the "Revd. Mr Lancelot of Hethpoole;" but his relationship to the Reeds, which is very probable, is not known. There were subsequently at least 4 Lancelots in the Reed family.

In 1722, George Reed, freeholder, votes for Hethpole. Burke says of him that "by his will, which bears date in 1743, he leaves a sum of money for the poor of the parish of Kirknewton, and mentions his cousin Ilderton, of Ilderton, then the representative of that most ancient house."

By an arrangement made during his lifetime (before 1739), it is not explained on what account, his sister Miss Reed, and her husband Robert Roddam, became joint possessors of Heathpool estate. Mr Roddam died on Christmas Day, 1744, and his wife on the same festival in 1745, both of small-pox, leaving two daughters, Sarah 5 years, and Mary 2 years old, co-heiresses. The rent was then only £180.*

My friend Mr R. G. Bolam, informs me that from the old Court Rolls of Wooler, it appears that from 1743 to 1747, George Reed (living in 1748) farmed Heathpool; and from 1755 to 1757, the heirs of George Reed occupied Heathpool, and were followed by Ralph Compton (as will appear subsequently there were two Comptons), continuing up to 1771-3, when Edward Potts becomes successor.

Knowing that the Reeds who afterwards farmed Heathpool are identical in race with the late proprietor, George Reed, whose will is dated 17 Oct., 1743, I take George, who farmed the place (whose owners were his aunt and nieces) to have been the oldest son, called by Burke, George Reed, Esq., of Hoppen. He may have managed Hoppent† also for his next brother Lancelot, who was the owner, and who died in London, without children, 27 Nov. 1784, when his estate devolved on his sister. Another brother, William, was blown up by a gunpowder explosion at the taking of Guadaloupe. Their sister Mary of Hoppen, died in London, unmarried, in 1790. She devised Hoppen by will, dated 1789, to her nephew, Thomas oldest son of George Reed, her eldest brother, and Elizabeth Werge only daughter of Thomas Werge, Esq., Horton Castle, Northd., and granddaughter of the Rev. John Werge, vicar of Kirknewton, and Miss Wood, Falloden. This Thomas Werge, says Burke, "settled at Horton Castle," i.e., I apprehend occupied it, as neither he nor his elder son John vote for it, but for freeholds in Milfield, where dwelt Thomas Wilson, whose daughter Elizabeth, Thomas Werge had married. In 1722, James Wilson, junr., residing at Coupland, voted for Milfield. In 1747-8, James Wilson,

* Autobiography of the Rev. Alexander Carlyle, D.D., p. 405.

† Formerly the estate of the Brandlings.—T.C.

residing at Milfield, voted for Milfield; but in 1774, Thomas Werge, residing at Horton, and his son John, vote for Milfield, and the Wilsons have disappeared.* This episode of the tenancy will be afterwards resumed.

The younger of the heiresses, Mary Roddam, was married at little more than the age of 17, to the Rev. Alexander Carlyle, D.D., of Inveresk, then aged 38. Dr. Carlyle called "Jupiter Carlyle" from his imposing appearance, was a member not the least eminent of the distinguished fraternity of literati and philosophers, that then illuminated the capital of Scotland; and he was also a minister of powerful influence in the Church of Scotland.† Carlyle was indebted for his good fortune in marriage to John Home, the author of "Douglas," who "pointed out the young lady as a proper object of suit." She was under the charge of Mary Roddam, her father's sister, wife of the Rev. William Home, then minister of Polwarth, and afterwards of Fogo in Berwickshire. The marriage, which was a most happy one, was celebrated in Edinburgh on the 14th Oct., 1760. In the following year, the older sister Sarah was married in April‡ in Edinburgh, to John Erasmus Blackett, youngest brother of Sir Edward Blackett, Bart., of Matfen, whose business was a coal-fitter at Newcastle, of which he was subsequently Mayor in 1765, 1772, 1780, and 1790. Carlyle says that "he was a very handsome young man of about 30;" adding however, that he was "imperfectly educated, and of ordinary talents." He became, notwithstanding, a very competent man of business. Dr. Carlyle and his wife visited Heathpool in December, 1760, staying with Alexander Davison and his wife, at Lanton, "two worthy people, who had acquired an independent estate by farming, which had not been done frequently at that time."|| He calls Heathpool "a beautiful Highland place." In February, 1761, at Wooler, the estate was let by the trustees, to "Ralph Compton, the second son of our former tenant, for the usual term, and rose from £180 per annum, to £283."§ Again in April, 1766, Carlyle made a tour with his wife "to Berwick, Lanton and Fogo, for her health and to visit our friends."¶ Mrs. Carlyle was a lady of great ability as well as amiability. She died 31st Jan., 1804. In alluding to her death, her husband had pathetically recorded in his diary, that "no finer spirit ever took flight from a clay tabernacle to be united with the Father of all and the spirits of the just."** He himself died on the 25th August, 1805. "He was laid beside his long-departed children and the faithful partner of his days, in his own churchyard, which he always loved for the beauty of the prospect it overlooks."†† His friend, Dr. Adam Ferguson, the historian and

* Poll Books.

† See his Autobiography edited by J. Hill Burton.

‡ Carlyle's Autobiog., p. 413.

|| *Ib.*, p. 410.

§ *Ib.*, p. 413.

¶ *Ib.*, p. 466.

** *Ib.*, p. 413.

†† *Ib.*, p. 575.

philosopher, once the rejected suitor of Sarah Roddam, composed the inscription engraved on his tomb.

In 1774, John Erasmus Blackett, Esq., Newcastle, and Alex. Carlyle, D.D., each vote for a "Moiety of Heathpool."* Of the first "the *Newcastle Chronicle* records the funeral on the 18th July, 1775, of Mrs. Sarah Blackett, his amiable consort, and within twelve months announces the death of his son and heir." Mr Blackett himself died 11th June 1814, aged 86. He was buried in St. Nicholas Church, Newcastle. Blackett Street in that city, named in his honour, "preserves the name of a family that produced rulers of Newcastle—aldermen and sheriffs, mayors and members of Parliament, for the greater part of two hundred years."†

Sarah, eldest daughter of John Erasmus Blackett and Sarah Roddam, eventually proprietrix of Heathpool, about the 18th June, 1791, became the wife of Captain Cuthbert Collingwood of H.M. ship *Mermaid*, afterwards Vice-Admiral Cuthbert Baron Collingwood, of Hethpoole and Caldburne, the great naval hero. He was descended of the Collingwoods of East Ditchburn, who were direct heirs of the Collingwoods of Eslington, forfeited in 1715. Their residence at Morpeth looked out on the S.W. on a garden sloping down to the banks of the Wansbeck, which he enjoyed nothing better than to assist the old gardener Scott, to dig and embellish.‡ Here he raised a colony of seedling oaks which he was very solicitous to have transplanted to Heathpool to raise "knee timber" for naval purposes.† When absent his daughters were careful to weed his oaks.|| To his daughters he writes in 1806, "be kind to old Scott, and when you see him weeding my oaks, give the old man a shilling."¶ He ordered a guinea for him on another occasion.** In March 21, 1806, writing to Lady Collingwood, he says: "I wish some parts of Hethpoole could be selected for plantations of larch, oak, and beech, where the ground could be best spared. Even the sides of a bleak hill would grow larch and fir. You will say that I have now mounted my hobby; but I consider it as enriching and fertilising that which would otherwise be barren. It is drawing soil from the very air."†† On this favourite subject he writes again in December of that year—"It is very agreeable to me to hear that you are taking care of my oaks, and transplanting them to Hethpoole. If ever I get back I will plant a good deal there in patches; but before that can happen, you and I shall be in the churchyard, planted under some old yew tree."‡‡ Murray's Guide Book says that the wood "of most curious, old

* Poll Books.

† Richard Welford, *Monthly Chronicle*, II., pp. 498, 499.

‡ Correspondence and Memoir of Lord Collingwood, p. 91.

|| *Ib.*, p. 271-2.

§ *Ib.*, p. 96.

¶ p. 184.

** p. 86.

†† p. 199.

‡‡ Selection from the Correspondence of Vice-Admiral Cuthbert Lord Collingwood, with his Life, by G. L. Newnham Collingwood, Esq., F.R.S. p. 257.

gnarled oaks, which belonged to Lord Collingwood," is at Heathpool Linn ; and undoubtedly on the height of Heathpool Bell adjacent to the Linn, if it belongs to the estate, is a wood of oak trees, which although from exposure they wear an old world look, are certainly trained trees. There are also on the S.W. of Harrow Bog about $\frac{3}{4}$ of a mile S. from Heathpool, on the east side of Colledge, other planted oaks of stunted growth. The natural wood of Harrow Bog is a tangled thicket of contorted hazels, which have been long famous for supplying the country-side with " Harrow Bog nuts." I was told that in the hot summer of 1864, the hazel nuts from it were extremely small in size ; much more so than in ordinary years. The name of the wood, it may be conjectured, might be derived from its being liable to supply the cultivator with timber for constructing the primitive rude harrows and other agricultural implements.*

Lord Collingwood died 6th March, 1810, off Port Mahon, and was buried in St. Paul's Cathedral, by the side of Lord Nelson: Lady Collingwood died 17th Sept., 1819.

After the death of these distinguished owners, Heathpool again relapsed into pastoral seclusion. There still remained a tie with the past in the tenantry. The Reeds after leaving Heathpool are believed to have become tenants of South Middleton, and early in the century went back to Heathpool. At South Middleton, the family owned a freehold cottage. In Burke's " Landed Gentry," William Reed, 4th son of George Reed and Elizabeth Werge, is called " of Heathpool," and that he was married and had a family. He was probably the Reed who returned, and then only as a tenant. In 1841 and 1847, William Reed, occupier of land was on the list of voters. There were no voters in 1872 or 1880. In 1872, Gilbert William Werg Reed, residing at Heathpool had freehold house and land at South Middleton. The cottage and land here have since been sold. At Kirknewton, a monument records the deaths of Thomas Reed of Hoppen, 1817, of Anne Reed, daughter of Thomas, and of Leighton Reed, 3rd son of

* When conversing with our venerable member, Mr Milne-Home, as far back as 1849, he mentioned that there were once tenures in some places in the east of Berwickshire, of which Mr Bishop of Reston-hill had told him, that had a right of timber in the woods of the manor "for harrow and barrow, for soam and team." The *soam* was a chain or rope to drag the plough ; *team* also was an ox-chain. In Galloway, *soam* is the iron-head of a plough. This does not help us in explaining the phrase " soam and team." In a lease of the lands of Brokholl, Heruode, (Harewood) and Denewood (Berwickshire) let by the Prior of Durham, 10 March, 1429-30, to Thomas Atkynson and his wife of " Bonkyll," there is this clause :— " Also yt ys accordit that the sayd Thomas and his wyfe sall have tymbre for byggyng of new howsys and reparelyng of tham, when that it needys by reson, and also for plewes and harrowes for tylth made within the said lande by bydyng of the priour of Coldyngham and delyveraunce of his officers, gyve silk tymbre may be fane within the sayd wode."—The Priory of Coldingham, p. 104 (Surtees Society).

Thomas, first Lieut. Royal Marines, who died in Jamaica, 1807.*

Inquiring at the Rev. P. G. MacDouall, formerly vicar of Kirknewton, he writes, dated at Stoney Stratford, Nov. 1, 1888: "I remember the name 'Werge' very well; if I remember right the Vicar of K.N., of that name was a grandfather (he was farther back than that) of the Reeds who occupied Heathpool when I was at K.N. Another ancestor of the Reeds was the owner of Heathpool. I do not think that any of the family in the direct line are living. I buried the two brothers that I was acquainted with."

Lord Collingwood left two daughters, Sarah, born in May, 1792, married to G. L. Newnham Collingwood, Esq., F.R.S., editor of his correspondence; and Mary Patience, born 1793, married to Anthony Denny, Esq. Mrs. Denny was lost to her infant family, by her death in 1822. I have no record of the death of the older daughter; but she appears to have had no descendants. In June, 1826, Anthony Denny, Esq., Elstree, Herts, had a vote for "lands at Heathpool." In 1852, Cuthbert Collingwood Denny, Bercham, Hants, was on the Register of Voters for Heathpool. In 1878, July 31, Heathpool estate was sold in London, and purchased by Mr H. T. Morton, the present proprietor.

Access was given to the Ford Papers to which I am so much indebted in the early part of this article, by Mr R. G. Bolam, our zealous antiquarian Club member, who has also supplied other information. I owe the woodcut of Heathpool Farm and Peel Tower, to Mrs. Rule, Wooler Mill, Wooler. It first appeared as an illustration in a local brochure of Poems by her brother, T. G. Shield, son of Mr George Shield, the Naturalist, Wooler.

* Wilson's Churches of Lindisfarne, p. 73, and Burke's Landed Gentry, p. 1010.

Erratum, p. 401, line 33 from top, for "John Darcy de Kynath," read John Darcy de Knayth (Knayth manor was in Lincolnshire.)

Note of Rainfall and Temperature at West Foulden during 1888. By H. HEWAT CRAW, West Foulden.

Height above sea-level, 250 feet. Distance from sea at Berwick 6 miles.

			RAINFALL.		TEMPERATURE.	
			Inches.	100ths.	Max.	Min.
January	..	..	1	30	54	22
February	..	..	1	27	52	22
March	..	..	3	40	51	22
April	..	..	1	72	61	29
May	..	..	0	59	65	29
June	..	..	3	29	65	35
July	..	..	4	11	65	38
August	..	..	1	90	69	36
September	..	..	0	94	70	36
October	..	..	0	85	61	29
November	..	..	4	78	52	29
December	..	..	0	70	55	23
Total Rainfall during year			24	85		

Note of Rainfall and Temperature at Rawburn, during 1888. By the same.

Height above sea-level, 920 feet. Distance from sea at Berwick, 24 miles.

			RAINFALL.		TEMPERATURE.	
			Inches.	100ths.	Max.	Min.
January	..	..	2	0	52	21
February	..	..	2	0	49	19
March	..	..	1	50	49	17
April	..	..	3	20	58	20
May	..	..	1	50	65	27
June	..	..	2	10	68	38
July	..	..	4	80	70	37
August	..	..	2	60	64	30
September	..	..	1	0	65	30
October	..	..	1	30	58	26
November	..	..	7	80	53	26
December	..	..	2	0	52	22
Total Rainfall during year			31	80		

*Rainfall at Belle Vue House, Alnwick, Northumberland,
in 1888. By JOHN JAMES HORSLEY.*

MONTH.	TOTAL DEPTH. Inches.	GREATEST FALL IN 24 HOURS.		Number of Days on which .01 or more fell.
		Depth.	Date.	
January ..	0.84	0.16	3rd.	11 days.
February ..	0.88	0.11	19th.	9 „
March ..	2.86	0.77	29th.	19 „
April ..	2.01	0.37	20th.	18 „
May ..	1.09	0.42	29th.	8 „
June ..	2.28	0.84	2nd.	12 „
July ..	4.14	0.73	16th.	19 „
August ..	2.09	0.30	21st.	17 „
September ..	1.45	0.63	1st.	12 „
October ..	0.80	0.21	30th.	11 „
November ..	4.67	1.03	2nd.	21 „
December ..	1.65	0.36	25th.	12 „
Total	24.76	5.93	12 days.	169 days.

RAIN GAUGE:—Diameter of Funnel, 5 in.; height of Top above ground, 1 ft.; above sea level, 303 ft.

REMARKS ON THE YEAR.

Number of Days Hail, Sleet, or Snow fell:—Jan. 6, Feb. 11, March 13, April 5, May 1, June 13, July 1, Oct. 2, Nov. 1, Dec. 2.—43 Days.

Jany. 28.—Eclipse of the Moon.

Feb. 14.—29.550. Snowing N.N.E. A brilliant Meteor travelling from S.E. to N.W.

Mar. 15.—29.050. Very stormy S.S.E. (melted snow 0.25.) No railway communication throughout the county, all being blocked with snow. No letters or newspapers.

„ 16.—29.375. Snowing N.E. (0.10). In the same plight.

April 17.—29.325. Dull S.E. Thunderstorm, rain, and hail (0.26.)

June 13.—29.475. Cloudy N.N.W. Do. do. (0.09.)

„ 14.—29.625. Fine W.S.W. Do. do. (0.19.)

July 10.—29.650. Cloudy N.W. Hailstorm (0.39.)

Aug. 2.—29.550. Do. S.E. Thunderstorm, rain (0.13.)

Nov. 16.—29.200. Fine S.W. High wind with showers (0.27), highest about noon (W.S.W., 80 miles per hour as registered by Alnwick Castle Anemometer; much damage to property, trees, etc.

Rainfall at Glanton Pyke, Northumberland, in 1888, communicated by F. J. W. COLLINGWOOD, Esq.; and at Duns, Berwickshire, communicated by CHAS. WATSON.

GLANTON PYKE.

		Inches
January	..	1.23·0
February	..	1.14·5
March	..	4.03·0
April	..	1.78·0
May	..	1.04·5
June	..	2.49·5
July	..	5.05 5
August	..	2.28 5
September	..	1.15·0
October	..	1.22 5
November	..	6.17·0
December	..	1.66·5
Total		26.27·5

RAIN GAUGE:—Diameter of Funnel, 8 in.; height of Top above ground, 4 ft. 3½ in.; above sea level, 517 feet.

D U N S.

		Inches
January	..	2.05
February	..	2.20
March	..	4.00
April	..	2.54
May	..	0.86
June	..	3.15
July	..	4.97
August	..	2.06
September	..	0 79
October	..	1.13
November	..	7.30
December	..	1.14
Total		32.19

RAIN GAUGE:—Diameter of Funnel, 8 in.; height of Top above ground, 6 in.; above sea level, 500 ft.

Meteorological Observations at Marchmont House. 500' Elevation. By PETER LONEY, Land Steward.

MONTH.	Total depth Inches.	Greatest Fall in 24 Hours. depth. date	No. of days Rainfall '01 or more fall.	Sunshine in hours.	Black-bull Minimum.	REMARKS On the state of Vegetation and Weather.
Jan.	2·00	·36 on 25th	16	53	12 on 19th, 20th	Good winter weather.
Feb.	2·19	·37 20th	19	50½	13 12th, 13th	Frost & snow all the time
Mar.	3·87	·88 28th	23	64½	12 28th	Agricultural work behind
April	2·85	·65 20th	22	102	16 9th	Agric'l work far behind
May	·83	·14 16th, & 29th	12	199½	17 29th	15* of Frost killing beech shoots, destroying hedges
June	2·93	1·02 28th	10	180½	23 5th	Cold, vegetation late.
July	5·13	·90 7th	21	104½	27 1st	Cold & wet, little growth
Aug.	2·74	·50 26th	19	126½	31 1st, 2nd, & 30th	Vegetation late, Turnips doing very little.
Sept.	1·01	·34 1st	9	126	27 30th	Best month, helped grain forward.
Oct.	1·48	·30 27th	13	73½	18 2nd	14* Frosted corn and turn- nips, elevations over 500*
Nov.	7·27	1·82 27th	24	24½	15 27th	Very wet and little sun.
Dec.	1·21	·29 25th	11	34½	10 14th	Dry for storing turnips, which are about ½ crop.
Totals			199	1140		

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General Statement.—October, 1888.

THE INCOME AND EXPENDITURE HAVE BEEN:

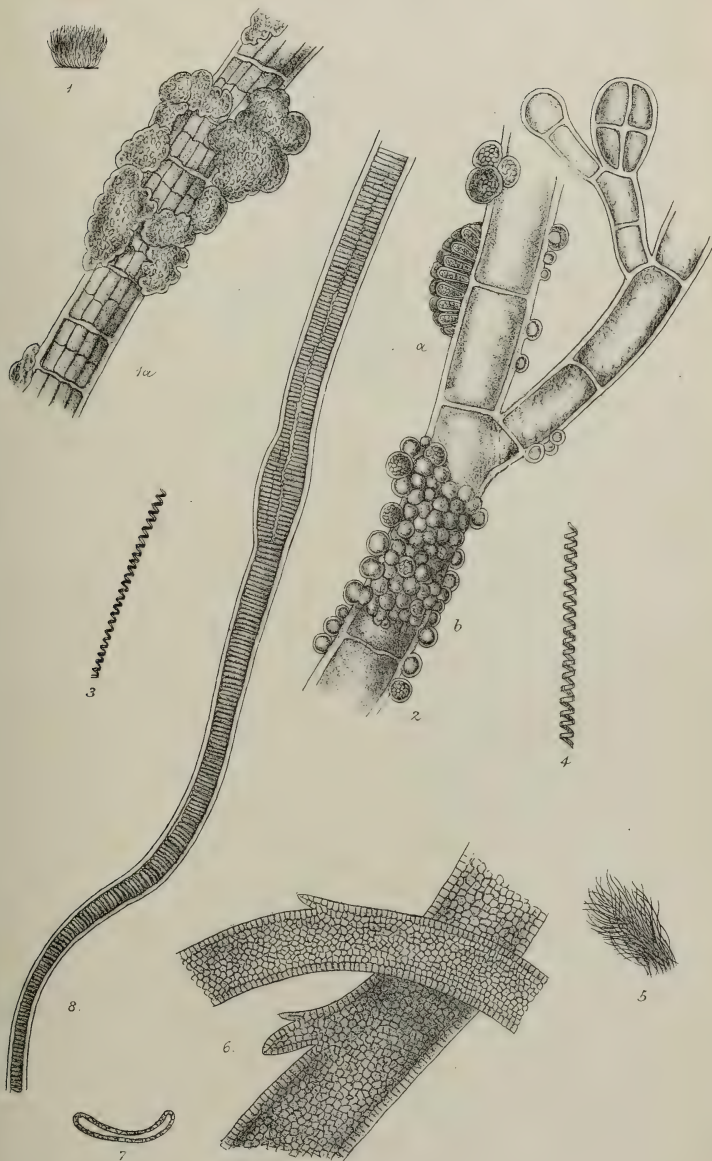
INCOME.

	£	s.	d.
Balance due from Treasurer	2	0	1
Arrears received	26	4	0
Entrance Fees	9	0	0
Subscriptions	109	4	0
Proceedings sold	2	7	6
	£148 15 7		

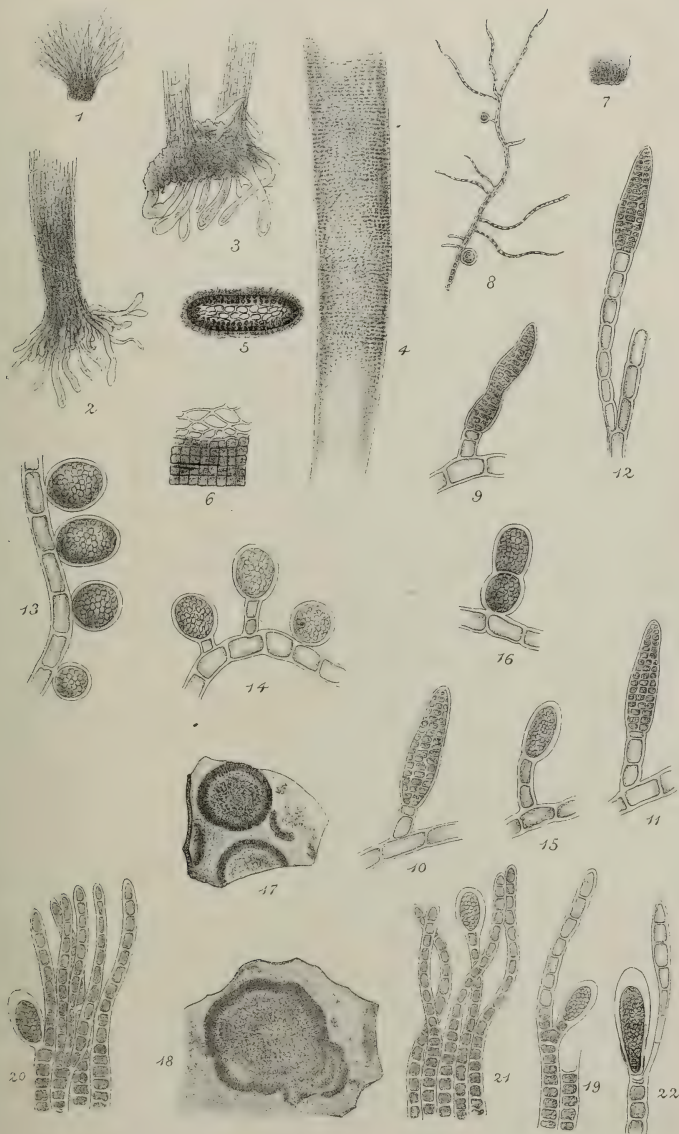
EXPENDITURE.

	£	s.	d.
Printing	69	1	9
Lithographing and Photogravure ..	34	7	6
Expenses at Meetings	7	4	3
Postage and Carriage	7	15	8
Berwick Salmon Company	8	5	6
Envelopes	0	15	0
Balance due from Treasurer	21	5	11
	£148 15 7		





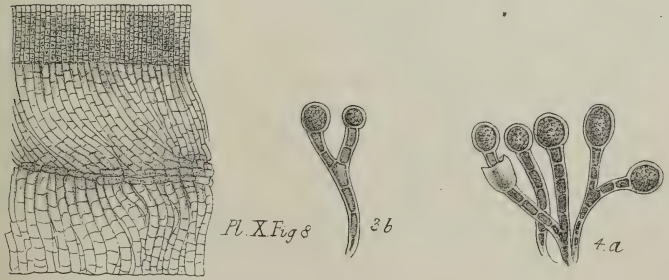
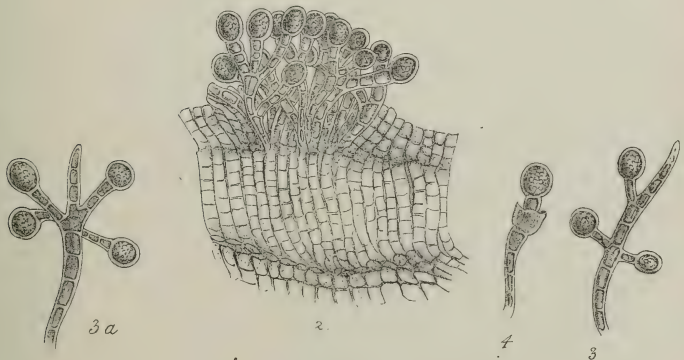




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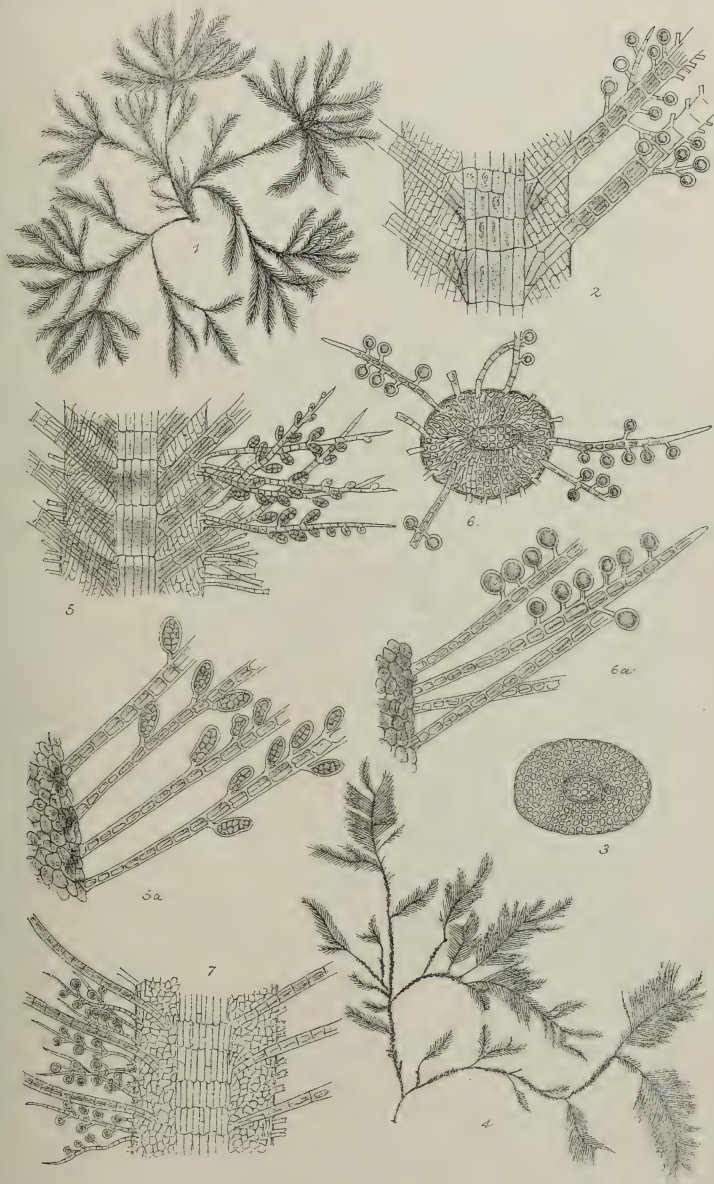
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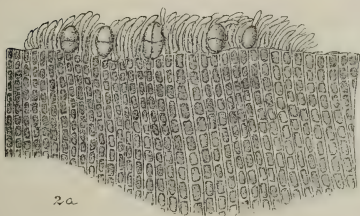
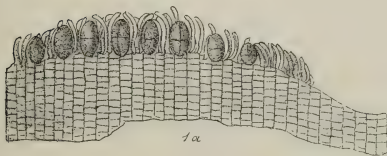
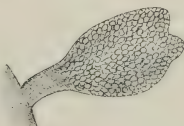
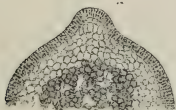


Pl. X Fig 8











PROCEEDINGS
OF THE
BERWICKSHIRE NATURALISTS' CLUB.

*Address delivered to the Berwickshire Naturalists' Club,
at Berwick, October 9th, 1889. By JOHN SCOTT
DUDGEON, Esq., Longnewton, President.*

GENTLEMEN,

It having been your pleasure a year ago, to nominate me to the honourable office of President of this ancient and distinguished Club, I proceed to fulfil the duty which devolves upon me, at this the wind up of the season's proceedings, to address to you a few words.

When I look back and consider the many eminent, cultured, and distinguished men who have filled the Presidential chair of this Club, during the fifty-eight years which have passed since its institution, I feel how utterly unworthy I am to occupy the position in which, by your pleasure, I am placed. From no consideration but that of length of years since which I joined the Club, can I account for the honour it pleased the members, last October, to confer upon me. I lay no claim to having done anything to advance its interests, or specially to promote its objects. The honour, therefore, I feel to have been all the greater; and words fail me to convey to you my deep sense of the confidence you chose to repose in me.

Formerly it was the custom of Presidents, in their Anniversary Addresses to give an account of the year's proceedings of the Club, going over in detail the different monthly meetings, and recording everything of value and interest discovered by the members at each; but our enthusiastic, erudite, and much appreciated Secretary, Mr Hardy, now takes that burden and duty upon himself, and does it in a way, to which I, and I fancy most of us, could never hope or aspire to attain. He, to-day, will favour us with a short resumé of the year's work, which will appear in fuller detail in the published Proceedings. I am glad to think that the meetings have been not less interesting than usual, and that those held during my tenure of office, will compare favourably with the meetings of former years. The places selected all proved very attractive, the weather on each occasion was favourable, the attendance of members was large, the meetings were every one successful, (on three occasions their success was in no small degree heightened through the kindness and generous hospitality of Mr Collingwood, at Glanton Pyke; of Mr Bertram, at Cranshaws; and of Mr Howey-Taylor, at Beadnell): and all who were fortunate in being present, went home with happy recollections of the day's outing.

The Club is old, and its members have to mourn that scarcely any of those who shared in the first decade of its history, are now left to take part in its meetings, and to tell us of the old memorable days when they were privileged to unearth Nature's treasures—till then unknown and unrecorded; but the objects for which the Club exists, and was so happily instituted, never grow old or lose any of their powers to interest. Years may pass, and generation after generation may be born, and live, and die, and every one of these may excel its predecessors in zeal and intelligence to discover and elucidate; yet still there will ever remain fresh ground to be taken up, undiscovered treasures to reward the seeker. For why? the search is after the works and doings of

the Infinite, the All-wise, the Unsearchable. Dr. Johnston, the Club's founder, said "May the Club live for ever," and others have, again and again, echoed his saying. May we not assert, without gainsay, that the Club shall last, if not for ever, as long as Tweed flows, and Cheviot stands.

The Club's motto—"MARE ET TELLUS, ET, QUOD TEGIT OMNIA, CÆLUM," would indicate even a more extended field for investigation than its members have as yet cultivated; and as one who has made no branch of natural science a special study, but rather taken note of its general application to the practical, particularly as affects Agriculture—in the pursuit of which my life has been spent—I may be permitted, without overstepping the limits of observation prescribed by our founder as those within which the Club should confine itself, to take note in the few remarks I am now expected to make, of

HOW AGRICULTURE AS AN INDUSTRY HAS BEEN INDEBTED TO
THE RESEARCHES AND DISCOVERIES OF NATURE'S
SCIENTISTS, DURING THE YEARS THROUGH
WHICH THIS CLUB HAS EXISTED,
NOW CLOSE ON SIXTY!

It would be a weary task to describe, in any detail, the progress agriculture has made during these years, and one which your patience would scarcely tolerate; but a short glance at the advances which have taken place, I think, may not be uninteresting nor unprofitable.

Let me first try to show what was the condition of Scottish agriculture towards the close of last century. This I do by quoting the words of Lord Kaimes, whom, so eminent an authority as Sir John Sinclair, the founder of the Board of Agriculture, characterises, in his "Account of the Husbandry of Scotland," published in 1812, as "one of the ablest writers on agriculture in modern times." Writing in the year 1770, Lord Kaimes says—"Our crops

in general are very indifferent; and how can it be otherwise, considering our instruments of husbandry, which are sadly imperfect? What can be expected from them in a poor soil, when they perform so little even in the richest? Our crops accordingly correspond to our instruments." Of draught horses, he says "the breed is so much neglected, that they are commonly miserable creatures without strength or mettle." "With respect to oxen, there is no care taken, either in the breeding or feeding: from the little care of providing food for draught oxen, one would suspect it to be a general opinion, that they require no food. In summer they are turned out into bare pasture, scarce sufficient for sheep. In winter, a small bottle of straw, not above a stone weight, is all that is allowed them in the twenty-four hours. What can animals so fed do in a plough? And yet such is the stupidity of many farmers, that instead of adding to the food, they add to the number: as if it would mend the matter to add cattle that can scarce support their own weight. One unaccustomed to see ten oxen in a plough, led on by two horses, cannot avoid smiling. Our farmers, led entirely by custom—not by reflection—seldom think of proportioning the number of their working cattle to the uses they have for them. Hence in different counties, from six to twelve oxen in a plough, without any regard to the soil." "The division of a farm into infield and outfield is execrable husbandry. Hence extensive farms, a small part of which next the dwelling, termed *infield* cultivated for corn: the remainder termed *outfield* abandoned to the cattle, in appearance for pasture, but in reality for starving." "Custom is nowhere more prevalent than in the form of ridges. No less high than broad, they are enormous masses of accumulated earth, that admit not cross-plowing nor any plowing, but gathering and cleaving. Custom and imitation so powerful that our ridges are no less high in the steepest bank, than in the flattest field. Balks between ridges are equally frequent,

though invincible obstructions to good culture. It would puzzle one, at first view, to explain why such strips of land are left untilled. They must have been reserved originally as a receptacle for stones thrown off the tilled land: and husbandmen were led by imitation to leave such strips even where there were few or no stones." "Shallow plowing is universal, without the least regard to deepness of soil. Ribbing is a general practice, though the slightest reflection is sufficient to make it evident that to leave half of the land untilled, must be wretched husbandry. Summer fallow has of late years crept in, and is now common in three or four counties. In the rest of Scotland, for want of summer fallow, there is a continual struggle for superiority between corn and weeds." Lord Kaimes goes on to notice the farmer's neglect in harrowing and rolling the land; his great ignorance with regard to rotation of crops; his very little skill in harvest-work; how no branch of husbandry is less understood than manure; the neglect to increase the cultivation of potatoes, which he describes as being almost wholly propagated in lazy-beds, while "expert farmers, not many in number, raise them with the plough at the twentieth part of the expense;" how swine are very little attended to in Scotland, remarking "they are fed at a small expense, and yet make most nourishing food. Every person who has a cow ought also to have a pig. This is universal in England: it is creeping into Berwickshire, but in few other places as far as I know."

Such, we must take it, was the condition of Scotch husbandry in 1770. How do we find it fifty years later, or about the period when this Club was instituted? Let the highest authority we can quote, Sir John Sinclair himself, tell us. He writes in his standard work which I have already mentioned, under the heading "General view of the Improved Husbandry of Scotland:"—"The foundation of improved agriculture is certainly laid in the best cultivated districts in Scotland, in as great perfection as it possibly can be in any country. The

farms are usually of a proper size—the farmers, in general, have capital adequate to their cultivation, they are bound to pay the landlord such a proportion of the value of the produce, as renders it necessary for them to be industrious and economical, and to acquire all the skill in the art of husbandry to which they can have access:—their leases are commonly of such a duration, as to encourage judicious improvement of their land, with the prospect of an adequate return:—the covenants in their leases are fair, being well calculated to promote and not to retard improvement:—a liberal system of connection is established between the landlord and the tenant:—and the characters of those by whom the labours of agriculture are carried on—whether farmers, apprentices, farm-servants, or common labourers—cannot be surpassed by those of the same description of life in any other nation.” Again “the various points which require to be attended to, previous to the actual cultivation of an arable farm, are in general ascertained by the practice of Scotland, with a degree of precision hitherto unexampled.” Further, he says “they are fully aware of the importance of draining, and have practised it with success.” “Their implements of husbandry are cheap and well constructed, their ploughs excellent, worked by two horses, and peculiarly well calculated for general use: their carts superior to any other: their live stock are valuable and well calculated for their soil and climate.” Again, in regard to the actual cultivation of an arable farm, Sir John says “the Scotch farmers have ascertained the proper length, breadth, and shape of ridges: in the use of putrescent and still more of calcareous manures, they have made great improvements; they have proved beyond the possibility of doubt, the advantages of deep ploughing; they have completely ascertained the advantages of summer-fallowing where soils are either of a clayey nature, or are incumbent on wet subsoils; they have carried on with success, some essential improvements in the cultivation of various

crops, in particular in regard to those important articles, turnips and potatoes: they have ascertained the rotation for which each description of soil is respectively best adapted: they cultivate in drills beans, turnips, and potatoes, in a manner not to be surpassed for its excellence: they have also made improvements in the harvesting of grain, having brought the cleaning and thrashing of grain to the highest degree of perfection, almost every farmer having fanners and threshing mills; they have carried to a great extent the practice of "soiling" horses, and even cattle, and have proved by decisive experiments, the superiority of the plan: they have restricted the practice of preserving permanent pastures within reasonable bounds, and have proved that the convertible system of husbandry, may be generally adopted, to the great benefit of the proprietor and of the public." Summing up, he says "the result of this system is in the highest degree satisfactory. In all the corn districts, where the convertible husbandry is thoroughly established, greater crops are raised and higher rents are paid than in any other part of the British Dominion; and what is equally remarkable, the condition of those engaged in agriculture, evidently bears the like marks of abundance."

Looking at the picture of Scottish agriculture as drawn by Lord Kaim in 1770, and the picture of it as drawn by Sir John Sinclair in 1812, we cannot but marvel at the almost magical transformation which has overtaken the industry in the short space of less than fifty years. It has emerged from a system the most rude and barbarous, to a system the most intelligent and enterprising to be found anywhere among the nations of the earth. And that this is no misrepresentation of what did occur, is corroborated by many facts; let me only notice one—the fabulous rise which took place between the two periods in the value of land. Take the following of local instances. The farm of Wark, 1200 acres in extent, which was rented in 1786 at £800, was let

in 1812 for £3,200. The estate of Pawston advanced within the same period, from £560 to £2,140. The estate of Ednam, which was sold in 1787 for £31,500 was purchased by Lord Dudley and Ward, in 1825, at £105,000. In 1780 the estimated rental of the arable land in Scotland was £1,500,000, in 1815 it had risen to £4,400,000.

Coming now, as we would wish, to speak of the advances made during the last sixty years, we find no such magical progress and transformation to be recorded. The theory of agriculture—*as an art*—seems to have been as thoroughly understood and to have been applied with as much intelligence and enterprise to the cultivation of the soil in 1830 as at the present day. The systems of husbandry followed were very much the same as now. There are no changes to record in the varieties of the crops cultivated. The produce per acre, on ordinary good dry land, has not been increased, and the value of such land has not risen. Yet all the same there have been advances and very marked ones. The application of “thorough drainage” has enormously augmented the acreage subjected to “good husbandry.” Lands formerly comparatively unproductive have thereby been raised to the highest grade among grain and meat producing soils. The introduction of artificial manures has extended the available arable acreage of the country in an enormous degree; and by making the cultivation of turnips possible on high and far outlying situations, has perhaps nearly doubled the numbers of sheep sent to the butcher-market from a large proportion of Scotland. In other directions advances might be mentioned, which I forbear doing, wishing rather to direct your attention to the main purpose of my remarks, viz:—How almost all, if not all, the progress made in agriculture during these years, is to be ascribed to the help it has received from the researches of careful and intelligent scientists into the methods and doings of Nature. Agriculture, from being solely an Art, has grown during these years into a Science.

All agricultural practice was, at their commencement, a groping in the dark. The why? and the wherefore? could not be given, for the application of particular manures to particular crops, for the following of particular rotations of cropping, nor for the draining and subsoiling of land. Nothing was then really known of the specific wants of plants; of how they assimilated their nourishment; from whence they obtained the various constituents they required; why one soil was productive and another sterile; and many like things connected with plant nutrition as well as animal nutrition.

Now all this is changed. And because of the investigations and deductions of Nature's scientists, we are able to give an intelligent, and in most instances, an unquestionable answer on these various matters. And though, as we have already noticed, general farm practice has not changed in any marked degree during the last sixty years, still much information has been obtained which has been found of the greatest value to profitable farming, and which there can be no hesitation in saying, has mightily assisted agriculture to bear up under the many reverses to which it has been exposed throughout this period.

The first great awakening to the benefit which scientific research was able to confer on agriculture, may be said to have been the publication, in 1840, of Leibig's "*Chemistry of Agriculture and Physiology*." Up till this time really nothing was known of the commonest principles which govern animal and plant life. The theories regarding the causes of fertility in soils were of the rudest and most erroneous kind. It was believed that plants obtained all that nourished them, solely by assimilating, directly from the soil through their roots, a substance designated by the name of "humus," or vegetable mould, and that soils were consequently fertile or unfertile in proportion to the quantity of this substance they contained. Leibig proved that this "humus," in the condition in which it exists in the soil, does not yield the smallest nourishment to plants; and that plants are dependent for all the carbon they contain (the

constituent of which they are most largely composed) on the carbonic acid, which is always present in the atmosphere. This gas, plants have the power, through their leaves, quite as much as by their roots, of decomposing—assimilating the carbon, and liberating the oxygen of which it is composed. This discovery of Leibig's brought to light that beautiful harmony of nature, the interdependence of vegetable and animal life. How carbonic acid gas, so noxious to animal life, which is generated by every breath that is drawn, by every fire that burns, by every organism that decays, forms the source from which vegetable life derives, in much the greatest part, the constituents with which to build up its structure. How plants not only purify the atmosphere and render it fitted to sustain and nourish animal life, but actually convert a poison into wholesome food for its further sustenance and increase.

He also showed by the analyses of the ashes of plants, that some mineral constituents were always present, and that without a due proportion of these existing in an assimilable condition in the soil, from whence alone they could be obtained, plants could not thrive and produce the results aimed at by cultivators. That accordingly, degrees of fertility in soils were ascribable to the presence or absence of these mineral constituents, in an assimilable condition : but as soils in general contained an abundance of the majority of the mineral constituents necessary, it was almost wholly upon the presence of phosphorus and potash that their fertility depended.

Leibig, unfortunately for his otherwise most distinguished reputation as an Agricultural Scientist, advanced and maintained the theory, that plants obtain the nitrogen, they all contain in larger or smaller quantity, solely from the atmosphere, having the power, as he asserted, of assimilating it much in the same way as they do carbon. This error of his led him to minimise the value of nitrogenous manurial applications, and to overestimate the value of phosphatic.

In spite of this error, perhaps it might be added quite as

truly, and partly *because of this error*, for it roused the attention of other scientists and set them thinking, working, and experimenting, and controverting, these teachings of Leibig very soon had an important and most beneficial influence on the whole agricultural practice of the country. The manufacture of artificial manures was begun, and when it became known that by the use of a few hundredweights per acre of concentrated manure, better crops could be grown than by many tons weight of farm yard dung, the demand for these rapidly increased, developing as we know it has done, into one of the more important industries of the country.

I do not propose to go into any detail regarding the many important discoveries which have been made since Leibig's day in further elucidation of the principles which govern animal and vegetable nutrition; such would be out of place, besides being unnecessary for my purpose. I cannot however forbear mentioning the peculiar indebtedness of agriculture to Sir J. B. Lawes and Dr. Gilbert, for their long continued, most laborious, carefully conducted, wide embracing researches and field experiments at Rothamsted. Of these Dr. Voelcker says "there is not one of Messrs Lawes and Gilbert's invaluable contributions to scientific agriculture which has not had a more or less direct influence upon the progress of British agriculture." It is something to be proud of that these, admittedly the foremost and most reliable experiments ever conducted, have been carried on in this country, and by the enterprise and at the sole cost of a British farming proprietor.

Through the researches of these and other eminent naturalists and scientists, both in this country and on the continent, many of whom have made and are making the needs of agriculture their special study and life's work, the best every day husbandry is now being carried on according to truly rational and scientific principles. The great majority of farmers may not be able to give a correct reason for this and the other thing of the procedure they follow, never perhaps having troubled their heads about it, but all

the same they are fully alive to its advantage ; and there is no slighting and despising of science as there used lately to be, but on the other hand a very general respect and deference is now paid to its teachings, and a desire manifested to make use of its assistance.

Let me now, in bringing to a close these very imperfect remarks, attempt to state very shortly, the directions in which the researches and discoveries of Nature's methods of working have influenced and advanced ordinary farm practice during recent years.

Through a knowledge of the absorbent properties of soils, and their varying powers of retaining the different constituents upon which their fertility for vegetable sustenance depends, much has been learned as regards (1) the best forms in which to supply these essential elements ; (2) the best periods of the year at which to make the applications of such to the different crops cultivated ; and (3) the proper quantities which are requisite, that there may be enough and yet no undue waste. We have learned (1) that while soils have the power of retaining *nitrogen* when presented to them in the form of ammoniacal compounds, they part very freely with it when by the oxidation of these compounds, the nitrogen they contain passes into the form of nitrates ; (2) that plants are dependent solely for the supply of all the nitrogen they require on what they can find, *in the form of nitrates* present in the soil ; (3) that as regards *phosphates* and *potash*, soils have the power of conserving these in all the forms in which they come to them for crop sustenance without much appreciable loss. Accordingly it is now the practice, in making application of nitrogenous manures to apply those which contain their nitrogen in the form of ammoniacal salts and organic compounds much earlier in the season than formerly, and to reserve the application of those which contain their nitrogen in the form of nitrates, to a considerably later season, till in fact the rootlets of the crop cultivated have taken possession of the soil and are ready to seize hold of what they require before it is washed out of their reach by the rains of heaven.

From this knowledge we have obtained of the soil's inability to conserve for plant use the constituent nitrogen (upon which its fertility so much depends) in the same way as it is able to keep safe such mineral constituents as potash and phosphorus, we have learned—that while there is no necessity to apply any excess of these latter, over and above what is actually removed of them by the crop—it is absolutely necessary, in order to maintain the fertility of the soil and obtain the best results, to apply a large excess of nitrogenous dressings, over and above what the crop is found actually to remove. This is peculiarly the case as regards the manuring required for all the cereal crops and the grasses, but not for turnips, clovers, and the leguminosæ. These latter seem to have some peculiar powers of assimilating nitrogen, nay, even of assisting in its manufacture within the soil, which the former have not, and about which there is still much to learn, and much most interesting discussion and investigation going on at the present time, involving the part which micro-organisms and bacteriæ may probably have to do in the nitrification of soils.

Then as regards the different crops of the farm, we have learned their different specific wants and their different powers of assimilating these under different circumstances of soil and climate, and at different stages of their growth. Accordingly it is the practice to use for turnips, principally phosphatic dressings, more or less soluble according to the nature of the soil, the season of application, and the climate; for leguminous crops, principally potassic dressings; and for the gramineæ, principally nitrogenous. As to farm-yard manure, its intelligent preparation, conservation and application is now pretty thoroughly understood; and accordingly the practice, in all these particulars, varies very much from that of thirty years ago. Feeding stuffs, rich in their manurial residual value, are much more largely used in butcher meat production—covered-in courts are pretty general on all farms—and the dung so prepared is commonly applied directly to the land from the courts, and immediately spread. Farm-yard dung is also now very largely used

for dressing grass land, both under rotation and in permanent pasture, no artificial compounds being found so effective in its improvement.

Had time permitted I should have liked to pass under brief review, one or two more of the many other directions in which natural science investigations have strikingly advanced the progress of agriculture and influenced its practice during the last 60 years; but already my address has far exceeded the limits I had proposed even to myself, and a consideration for your feelings compels me to bring it to an end. The points I intended to take up were Natural Science in relation to draining, to stock feeding, and to grass cultivation; but about such I must not speak at present. Perhaps some one better qualified for the task may be induced to contribute a paper thereon, as I am sure the subject would interest many, and be of value, and not out of place in our Proceedings.

It becomes my duty before I sit down to record, which I do with painful regret, that since this day twelvemonths the Club is poorer in its membership by there having passed from our midst, several well-known and much esteemed members:—the President of last year, my immediate predecessor in this honourable office, Mr Matthew Tewart Culley of Coupland Castle, Mr Jonathan Melrose, Coldstream, Mr William Currie of Linthill, the Rev. Canon Cooley, M.A., Ponteland, Mr Allan Swinton, Swinton House, and Mr Ephraim Arkle, High Carrick.

Mr Matthew Tewart Culley of Coupland Castle, who died very unexpectedly on the 2nd of March last, was the direct representative of the Culleys, so famous because of the part they took in the unexampled progress made by agriculture in the East Border District, from 1790 to 1830. Sir John Sinclair speaks of one of these as “the celebrated George Culley.” Mr Matthew Culley, who was a Magistrate for Northumberland, and High Sheriff of the County in 1869, was an excellent linguist, and possessed a well-stocked library. He was also a noted angler and is mentioned in Henderson’s “My Life as an Angler.”

Gentlemen, some have lamented that the entry to the membership of this Club, has of late years become too lax ; and that its present membership, though greatly increased in numerical strength, has degenerated in point of devotion to research into natural science. This takes a very one sided and restricted view of the Club's objects with which I for one have no sympathy. It may be quite true that only the minority of our present members make some one of the natural sciences their special study, and are able to classify and describe scientifically the plants, animals, minerals, and fossils which come under our observation ; but none the less, the remaining members may be as true lovers of and searchers into Nature, and some may even take a wider, deeper, and more appreciative cognisance of the wonders and wisdom which are disclosed. There is something higher surely than mere dictionary knowledge, essential enough in its way. What should most properly engage a rational and thinking mind is to soar up to enquiries and researches into the powers and properties, the beauty, adaptation and harmony of organic and inorganic creation. It appears to me it would be injudicious and contrary altogether to the intention of the good and sagacious men who instituted this Club, to shut out from participating in its simple, happy, and elevating meetings, any who love Nature and seek through Nature to find out more of the perfections, wonders, and wisdom of the Infinite and the All-wise.

In vacating the chair, I have pleasure in moving that Major General Sir William Crossman, K.C.M.G., F.S.A., M.P., be elected President of the Club for the ensuing year.

Report of the Meetings of the Berwickshire Naturalists' Club for the year 1889. By JAMES HARDY, LL.D.

GLANTON, GLANTON PYKE, BRANTON, REAVELY, INGRAM,
GREENSHAW HILL, HARTSIDE (HERTISHEVED),
GREAVES ASH, LINHOPE, LOW HEDGELEY.

THE first Meeting was on May 29th, the place of assemblage being Glanton Pyke, in Whittingham Vale. Our venerable member, Mr Collingwood, had hospitably invited the Club to breakfast at his mansion, when some thirty-seven from all parts of the district had the pleasure of being present. Glanton, owing to the absence of deeds and numerous subdivisions of property, requires a special inquiry to elucidate its story—at least the western moiety; the eastern having been transmitted through fewer hands, and belonging to the barony of De Ros can be more readily traced, and is much more simple and unbroken.

Most of the party passed through the pretty village of Glanton, about which I have recently obtained a few recollections from former or present residents, which I give as preliminary to the day's operations. None of the present inhabitants have seen the old market cross, although I believe there is a fragment of it somewhere, but the foundation of it could be pointed out within the last 25 years. It stood on a sort of mound on the left side at the top of the road that goes down to Whittingham.

There is the tradition of a graveyard and a chapel having been situated behind the Queen's Hotel. It was possibly of Nonconformist origin, but this is merely conjectural. All that is known about early Presbyterianism here is that we ascertain from the "Records of the Justices of Northumberland," in 1702, the house of Tim. Punshon of Glanton was licensed as a meeting house of Protestant Dissenters; and that on the previous year, on the 8th October 1701, at the Michaelmas Sessions in Newcastle, the house of the same Timothy in Beanley was also licensed, and that for various other private houses or outhouses in North Northumberland, licenses were then obtained. The Rev. R. H. Davidson informed me that the present Presbyterian congregation does not represent this older society, but that it

was formed in 1781, and this church was built in 1783. It was a split from Branton, which is considerably its senior, with traditions reaching back to Covenanting times, when persecuted Scottish refugees found shelter behind the Cheviots. This is a branch of inquiry that county historians have quite neglected. Fortunately our Antiquarian contemporaries in Newcastle are now alive to its importance. The northern division of this county, however, more properly belongs to us.

Glanton has a famous well with imaginary salubrious qualities. It was the common well of the villagers, and lies near the base of a slope beyond the present school-house, and the water issued from a pipe. I am told that it was once customary for parents to take their weakly children to it in summer, to be strengthened by the application of its refreshing waters. They were wrapped up in blankets, and placed under the spout. It was called the *Keppin'* or *Keppie Well*, owing to the water having to be caught or "kepped" in pails, or skeels, or jugs, with which the townspeople resorted to it in the morning to take their turn in carrying home the domestic supply for the day. It might thus become a metaphorical "*Keppin' Well*," which people resorted to for gossip, or converted it into a place of assignation. "*Glanton green*" is the name of a special variety of gooseberry raised at Glanton.

The company were delighted to meet with Mr Collingwood, still in the enjoyment of good health, and that he was able to undertake another journey with the Club. The place is in excellent order, and commands one of the finest and most extensive views in the district. After breakfast there was time to look round and examine the well-arranged garden, the apiary, the green-houses, and the thriving collection of exotic Conifere. Mr Collingwood has favoured the Club with some data of the height of the best of the Ornamental Trees.

		ft.	in.
<i>Araucaria imbricata</i>	-	43	1
Deodar, <i>Cedrus</i>	-	43	3
<i>Abies Morinda</i>	-	42	0
<i>Wellingtonia</i>	-	45	4
Ditto.	-	49	7

The *Araucaria imbricata*, in front of the house, had blossom on it for the first time in 1888—the male efflorescence; it was planted about 38 years ago. Mr Collingwood also mentions

that "for some years latterly I have found some seedling plants of the Common Maple in *one* and *only one* part of my kitchen garden, and it is found in no other part of the pleasure grounds; the parent trees being near the front door upwards of a hundred yards distant. These plants do not appear annually but only occasionally. Last year, near the same spot in the kitchen garden, two *beautifully variegated* seedling plants of the Common Plane tree have been found, and I am not aware of any such variegated trees growing in this neighbourhood."

In the interesting museum there were noticed a Flying Fish, a small Crocodile, a stuffed Otter, a Night Heron, Wax-wings shot at Glanton Pyke, also *Thalassidroma Leachii*, and several other birds, which I believe are recorded in early volumes of the Club's Proceedings. Among the collection of weapons were a Russian Musket taken at the capture of Sebastopol, 8th September 1855, and an Assegaie from Ulandi, 4th July 1879. There was not time to do more than glance at the literary stores in the library, which appeared to be valuable. Several additions to the party had arrived outside, including the High Sheriff of Northumberland (Major Carr-Ellison), so that the signal for departure had to be passed round hastily. The President conveyed a hearty vote of thanks to Mr Collingwood before leaving. Mr Collingwood and Dr Douglas accompanied the Club to Greaves Ash. The day opened out fine, but somewhat glassy, with white fleecy vapours screening the horizon, as if they hovered round the tips of thunder clouds, lurking behind the distant hills. Under the bright sunshine the young foliage of the trees wore its best tints. The hawthorn was just coming into blossom at Glanton. Before entering the village there was a field or plot full of blooming *Anthriscus sylvestris*. I noticed this also as growing profusely at Eslington, where it had a delicious scent of Woodruff that I never experienced before from this umbellifer, so frequent by hedge-rows on rich soil. In Northumberland the fallen flowers that so copiously bestrew the ground where it grows, are called "The Devil's Meal."

Arranged in long procession the carriages proceeded to our destination far away up the winding valley of the Breamish. Below us lay Howbalk, a very old looking farm-place; and Mountain Farm, where recently in pulling down an old building, an iron arrow-head has been discovered, which has been drawn for a future paper. Iron arrow-heads are peculiarly rare, and

this is perhaps the first instance in which one has been obtained in the district. A subsequent example, of a different type, turned up a few days after the meeting among a collection of human bones, while digging a celery trench in the garden at Broompark. This has also been obtained, and a drawing in pen and ink has been taken. A stone inscribed with circles like those on the Doddington and Chatton hills, was also brought to light, I am informed by Mr James Thomson, in the "Night Folds Field," near Mile, said to have cups and circles on it. It will require, however, to be authenticated. Further evidences, of the hitherto unnoted presence of other inscribed stones, were obtained a few days after the meeting in an uninvestigated area, on a series of flat sandstone rocks in a field near Tricklely plantation on Chillingham Newton farm. I have, however, alluded to these, and described some Urns found on the adjacent farm of Lilburn Hill lying on the same platform as these inscribed rocks, in the *Archæologia Æliana*, N.S. vol. XIII., pp. 351-356, with plates and figures. They are portions of a previous find communicated by the late Mr Moffatt, to the Newcastle Antiquarian Society.

Mile was the village where Islay Herald was detained when despatched by James IV. to Surrey when encamped at Bolton previous to the battle of Flodden (1513), till that leader had advised with his officers on the prudence of holding a conference.

"At a little village poor
 Ilay did light, and took lodging.
 Constrained for to stay,
 And lodged there in a little village;
 Lest he their order might display
 Which might turn to the Scots' advantage."

Flodden Field, Weber's Edition, p. 79.

"At a village," says Hall, "called Mylo, twoo myles from the felde, untyll the coming thether of the sayde earle the next morrow." The interview had taken place at or near Mile. "The sixte day of September, early in the mornynge, the earle, accompaigned with the mooste parte of the lordes, knyghtes, and gentlemen of the felde, euery man hauynge with hym one man to holde hys horse, and so the sayde heraulde met wyth the earle." (l.c. p. 338.) Surrey kept Islay prisoner and pledge at Mile, till the King of Scotland delivered the English herald, Rouge Cross, whom he had detained. This was effected; and "Ilay came home before none, and shewed of his gentell enter-

teyninge, and then Rouge Crosse was deliuered, and came to the Englishe armye." (l.c. p. 344.) An ancient road probably passed Mile.

The back of Glanton Hill, once a boggy tract, is now drained and subdivided into fields. It is called Whaup or Curlew moor—a name still attached to the gamekeeper's house, which has marks of age about it, in the crop of Bishop-weed, and *Doronicum Pardalianches* outside of the garden fence; and some large Gean trees at this date in full blossom.

Opposite are the green hills of Fawdon, and the farm-place itself, and what is now the shepherd's house, but once a separate holding, the Clinch, near a water gulley or ravine. Fawdon was one of the Umframville fees, in the Barony of De Vescy. In the reigns of Kings Richard and John, it belonged along with the moiety of Nedderton to Henry de Batail, whose ancestors had been enfeoffed in them at the Conquest by Robert With-the-Beard. Near the end of the reign of Henry III., it was in possession of one of the ancestors of the house of Douglas, William de Douglas called "the Hardy," from the gift to his father and him of Edward I., then Prince Edward. This same William was nearly wounded to death and cut to pieces by another claimant of the property. The history of Fawdon must be reserved for a separate article.

Branton was the next place, a flourishing farm village, with a flower ornamented farm-house. The ancient name was Bromton or Brombton, the broom town, from the quantity of broom produced in the gravelly soil thereabouts. Breamish Water, despite its alleged Gaelic derivation, is as likely to be a word in plain English—the Broom-edge water. So Colledge Water is the water that washes the wintry *edge* of the Cheviots. Field-Marshal Lesley's invading army of Covenanters encamped in Branton field on the Breamish, 21st February 1641.

"On the 22nd of August, they marched to Middleton Haugh, near Wooler, where they were attacked by some of the King's troops from Berwick; but these were speedily repulsed, and some of them taken prisoners. Next day being a Sunday they marched to Branton Field, after sermon; and next day encamped on a hill between the New and Old towns of Edlingham." (*Rushworth.*)

At Branton there was a chapel and churchyard, latterly annexed to Eglingham, to which parish it belongs. Some particulars about it may be gathered from the documentary volumes of

Hodgson's Hist. of Northumberland; but there is not space for them, or the history of the place at present. The date of the earliest assemblages for Presbyterian worship at Branton cannot be precisely ascertained. Open air services were held in various localities in the vicinity. "It is said," the Rev. James Blythe, the present minister writes me, "that the first church was at Reaveley, situated about two miles N.W. of Branton; afterwards the congregation built a church in Branton and removed to it as a more central and suitable place; that edifice in after years was taken down and the present church was built, and bears the date of 1781." It has since been entirely renovated in the interior. In the "Records of Sessions of Justices," at Michaelmas Sessions, 8th October 1701, 13 William III., a meeting house for Protestant Dissenters was licensed at the house of "John Crispe of Reveley." This is the first written record of its existence.

Among the older geologists the great accumulation of gravel at the County Bridges used to be adduced as testifying to the wonderful disintegrating power of the present streams continued from age to age. Nowadays this vast mass of rolled debris will be attributed to the rivers and torrents of the glacial period, which the present floods merely re-distribute or shift about.

Entering Ingram haughs by the riverside, they were sprinkled with waving golden broom and stiff furze bushes all in bright blossom. Black-headed Gulls and Swallows were hawking along the stream. The fords are dangerous, shifty, full of slippery rolled stones, low on the one margin and high on the opposite. There might be four of these treacherous crossings on the way upwards. The stream is very tortuous, and seldom pauses in its determined onward flow. The grass on the lower part of the gravelly haughs is benty and rough, with much *Nardus stricta*; *Anthoxanthum odoratum* was also prominent in bloom, and unbitten by stock, which it seldom is.

The grassy slopes on the Fawdon side have several raised banks sweeping horizontally round them, more like water-formed lines than those of culture. There are some torrent gaps in them; and in a bog at the base is an assemblage of alder bushes. *Caltha palustris* in golden masses grows in the splashes, and *Ranunculus aquatilis* with its white bloom, specks the detached pools of stagnant water by the wayside. A high hillock below the gap where Reaveley looks out from a hollow is most remarkably streaked with old balks and terraces, partly upright and

partly transverse, not unlike the decoration of a British Urn. Remarks on these are to be found in Mr Milne Home's Address of 1861. (Club's Hist. iv., pp. 243-4.)

Reaveley lies low, with a good steadings, partly sheltered by trees, with extensive grazings beyond terminating in heathy moors in the background. It contains over 2340 acres. Reaveley signifies the pasture land of the *reeve* or bailiff. Along with Angreham (Ingram), Hertisheved, Faudon, etc., it belonged to the barony of De Vesey, from whom it was held by the Umfrevilles, Lords of Redesdale. In 53 Henry III., 1268, Hugh de Morwyck had lands in Reveley. In 12 Edward I., 1283, Galfrid de Lucy held the whole of Angreham manor, as well as the advowson of the church, court at Harbottle, lands at Reveley and Hethesheved (*sic*) etc.

In 18 Edward III., 1343-44, to John de Coupland, then Sheriff of Northumberland, were committed for his good services the lands in Prendwick, Great Ryle, and Reaveley, which belonged to William de Roddam, senr., who was then an enemy, having sided with the Scots. (Tate's Hist. Alnwick, i., p. 126.) In 26 Edward III., 1351-2, Reveley manor belonged to Henry Percy. In 7 Richard II., 1383, Robert, son and heir of Marmaduke de Lumley, held or had a share in Reveley manor. In 10 Richard II., 1386, Henry Fitz Hugh, "chivaler," held three husband lands in Revele. In 12 Richard II., 1388, and also in 1391, Alan de Heton is returned as holding it along with Ingram. In 5 Henry IV., 1403, Thomas, son and heir of Ralph de Lumley, chivaler, *attainted*, held Reveley. In 2 Henry IV., 1400, Sir Thomas Grey of Werke held half of Reveley as of the manor of Angram; and in 5 Edward IV., 1464-5, Sir Ralph Grey still held this moiety. In 3 Henry VI., 1424, Henry Fitz-Hugh, chivaler, held lands in Reveley. In 10 Henry VI., 1431, on further inquiry, it was ascertained that he held the moiety. In Hall's Survey, made in 1567, "Ingram, Ryvell, and Hartsyde," are represented as held in demesne of Alnwick Castle. In the Roll of the Knights' Court held at Alnwick in 1664, the heirs of Thomas Collingwood held Reaveley. (Tate's Alnwick, i., p. 349.) In 1663, according to the Rate Book, Sir Robert Collingwood held Branton, Brandon, and Reveley. In 1772 Thomas Collingwood of Great Ryle voted for Reevely. (Poll Book.) At present it belongs to Mr Allgood of Nunwick, who is also the proprietor of Brandon and Brandon White House.

According to the "Testa de Nevill," William de Vesey held of the king in chief, Angerham, with Reveley and Hertisheved, Faudon Batayll, Prendwic, etc.; and Gilbert de Umframville held these manors from him. In 1283 Angerham was held under the Umframvills or Umfrevilles, by Galfrid or Geoffrey de Lucy. It was complained in the "Hundred Rolls," that this Geoffrey de Lucy had appropriated to himself warren upon the moor and plain of Angreham, which was previously a common chace. In June 1291, Geoffrey de Lucy instituted a suit at Newcastle against William de Douglas claiming a common right in Faudon; when it was decided "that Gaufrid de Lucy never was seized of 200 acres of pasture and 10 acres of meadow in Faudon as pertinents of his free tenement in Angreham." (*Placitor. Abbrev.*, also *Historical Doc.* Scotland, i. pp. 233-4.)

In 2 Richard II., 1378, it and the advowson of the church pertained to Alan de Heton; also in 12 Richard II., when Huntlaw in the moor of Angram is specially mentioned; and continued his in 15 Richard II., 1391. Alan de Heton's daughters inherited each a share of "Angram." One of these, Elizabeth, wife of Sir John Fenwick held in 11 Henry IV., 1409, and again in 1411, the third part of Angram. In 4 Henry V., 1415-16, a third part belonged to Sir Robert Ogle. In 14 Henry VI., 1435, John de Greystoke, chr. held Angreham vill in its entirety. In 9 and 10 Edward IV., 1468-70, Sir Thomas Ogle held the third part of Angram.

In 10 Elizabeth, 1568, Thomas Swynburn, then of Capheaton, had land in the vill of Inghram (*Liber Feodarii*, in Hodgson's Hist., Part III., vol. III., p. 64.) In 1584, 28th Sept., 27 Eliz., Henry Denton held a third part of the manor of Ingram and its appurtenances, consisting of 300 acres of land, 200 acres of marsh, 600 acres of pasture, and 700 acres of moor; also a third part of the vill and appurtenances, and the donation of the parish church of Ingram, held of the Queen *in capite*. He died 5th November 26 Eliz. 1583. John, his son and heir, was 28 years of age. (Spearman's MS. *penes* Mr R. G. Bolam.) According to the Rate Book of 1663, Mr John Ogle of Eglingham then held Ingram Towne, and Mrs Grace Forster was then owner of Hartside. In 1699, Ingram in the "Records of Session of Justices," is called a manor of Biddleston. Hartside in 1788 belonged to Mr Thos. Selby of Biddleston.

In 1787 the estate of Ingram, Greenside Hill, and Grieve's

Ash, belonging to Mr Robert Ogle of Eglingham, was advertised for sale in the *Newcastle Courant*—the whole containing 4,003 acres of arable and pasture ground, viz.: Ingram, 2,348 acres; and Greenside Hill and Grieve's Ash, 1,655 acres; "generally allowed to be one of the best grazing farms in the county."

Mackenzie says that in 1825 it was the property of John Collingwood Tarleton, Esq. (Northd. II. p. 20.) Latterly it was purchased by the late Mr William Roddam, and is still held by Mr Roddam of Roddam. The Rev. James Allgood was for many years Rector of Ingram, but when he succeeded to the family estates on the death of his brother, Mr Hunter Allgood of Nunwick on North Tyne, he gave up the living and appointed Canon Ilderton, the present rector. (*Inform. of Mr Bolam.*)

The ancient name of the place is Angerham, not Ingram, signifying the dwelling on the meadow. *Anger* in Germany, is still a common, a pasture-ground, the common grass-plot. *Anger-hausler* is one whose house is built on the common grass-plot of a village. *Ing* (another form of the word) in some of the northern English dialects, signifies a meadow, generally one lying near a river. *Croft angry*, often supposed to be a Gaelic word (*croft-an-righ*) is from the same source. Thre says *æng* is a flat meadow between a town and a river on which the market or fair was held. *Ing*, *inge*, A.S., a pasture meadow. The church actually stands on an *anger* or flat near the river.

In 1859 the pier of an ancient bridge that spanned the unruly water near the church was laid bare by a winter spate, which changed the course of the river. It was forthwith published as Roman, but nearly every structure in stone and lime, of which there is no other account, is attributed to the conquerors of the world. Architects who could build churches could surely construct bridges as well as the Romans.

Ingram, and the neighbouring townships, lay in perilous proximity to the Scottish Border, and was in more senses than one not *Scot-free*. The Earl of Northumberland, writing to King Henry VIII., gives the following account of an inroad of the Scots on the 21st November 1532, in which it was involved. "The Scots layed their bushment in the edge of Cheviot; after whiche so doon, and the bushment and forray met, they did cast off two other forrays about xij. of the cloke of the day light. And the oone forray did run down the water of Bremyshe, and there toke up iiij. towns, called Ingram, Reveyley, Brandon and

Fawdon." The other took up Ryle and Prendwick. There were 200 men in each foray. The country rose and skirmished with them, and pursued them to Oswall Forde (Usway Ford, so called from King Oswy), where they nearly fell into an ambush. The Scots carried off "diverse persons, with great numbers of horse, nolt and sheepe." (Cotton MS. Calig. B. vi., 24, *apud*, Morton's Mon. Hist. Teviotdale, Note, p. 33).

When Bowes and Ellerker surveyed the Borders in 1542, they reported that "Ingrame was a little towne decayed," and that it had "a lytle toure wch is the mansion house of the parsonage." (Hodgson's Hist., Part III., ii., p. 210, fig. 1.)

When in 1552 the Border Watches were instituted; Hartsayd-Cragg was watched (during the day) with the inhabitants of Ingram and Hartsayd, Revely, with two men daily. The setters and searchers of the watch were "Hary Collynwood and Davide Hall." "The passages from Prendeke to Engram to be watched nightly with six men of the inhabitors of Prendeke, Mikel Ryell, Lytill Ryell, Unthank, Eslington, Clenche, and Fadden; Thomas Adden, Harry Colingwood and Rowland Taylour to be setters and searchers of these watches. The passages from Engram to Reveley to be watched with two men nightly, of the inhabitors of Engram. The passages from Reveley to Roddam to be watched nightly with six men of the inhabitors of Reveley, Branton, Branton and Hedgly; setters and searchers of these two watches betwixt Engram and Roddam, Thomas Patteson and John Modye." (Nicolson's Border Laws, pp. 182, 184, London, 1747).

Before April 16th, 1586, the "Scots Theves" among other places had spoiled Weperdon, Rosden, Elderton, Ingaram, Brandon, Fawdon, Glanton, Alnam, etc.; and had carried off much stock from Branton, Hedgeley, etc. (Tate's Hist. of Alnwick, i., p. 234).

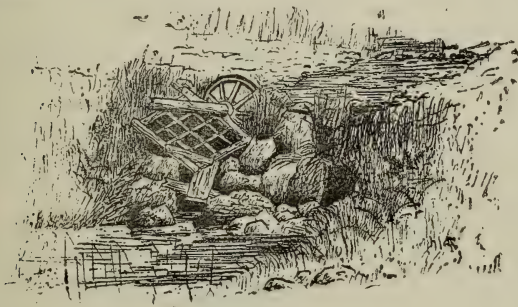
The vehicles crossed the river here, and the company were courteously received by the Rector, Canon Ilderton, who showed them the church and churchyard, and cordially invited them to call for refreshments on their return from their appetising experience of the mountain air. The pretty rectory is well sheltered by trees. It is said that "Ingram is one of the windiest places in all Europe," but when we visited it, there was the calm of reposing nature. The church is much renovated: the tower is the oldest part; part of it bulges out above the

base, as if about to burst and fall away. The font is dated March 11th, 1662, and bears as one of its devices, the Percy and Vere symbols. The two British Urns found on Roseden Edge, and described and figured in the Club's Hist., see Vol. xi., Plate v., were on view in the church. For an account of the church, I beg to refer to Mr F. R. Wilson's "Churches of Lindisfarne," pp. 92, 93. It has a much fuller history, but there is no room for it at present. In the churchyard is the grave of Mrs. Allgood and her two sons, who were killed in a sad railway accident at Abbot's Rippon, January 21st, 1876. The tomb is a rough fragment of a porphyritic rock, on which she was accustomed to sit when resting from a favourite walk on the upper part of the Breamish.

There is no village. All that now represents it is the farmhouse and steading. A fuller account of the place may be found in the Hist. of the Club, Vol. iv., pp. 239-240. Ingram farm is notable for its excellent grazings and the breed of Cheviot stock; and is tenanted by one of our members, Mr David Hall.

The hill-sides now become more abrupt, and on the right are roughened with scattered weathered crags, where the interstices are filled up with short herbage, which, coming early in spring, and owing to its sweetness, is at that period very attractive to the sheep. It belongs to Reaveley. Blue or purple glitters break out in lengthened drifts occasionally from the wasted rocks. For this site the Parsley Fern shows a preference. A few Hawthorns and Mountain Ashes are sprinkled among these glitters, farther up the glen, where the steeps swell into two prominent eminences, like a couple of opposing capes. The one on the right is Reaveley Hill: along its verdant hollow winding side there are handsome clumps of branchy scattered trees. The great hill on the left, with abrupt scaurs and fine barren scaurs, and the margin of a British camp that occupies the summit, just visible, is Brugh Law. Breamish leaves the road here, and wheels behind a lower hill, Meagrim, on whose end is the broken porphyry crag, where materials for tombstones can be procured. Thin patches of dwarf trees are seen flanking the windings of the river as one looks upward, backed by extensive steep pastoral slopes. About Brugh Law, on the hill-sides, there were numerous Ants' hills of *Formica umbrata*, previously found in Langleyford Vale, and afterwards in Kidland on the Alwen.

We turn up Greenshaw Hill burn-side, where an old-fashioned cart with wooden axle that was wrecked here when crossing the ford, still lies to testify the former rough and dangerous state of the roads. It has been drawn for illustration by Mr H. P. Taylor.



“AT THE FORD.”

Most of the carriages were left below Greenshaw Hill. At this retired farm-place culture and green fields re-appeared. Apple trees were flowering in the gardens; good rye-grass and clover covered the enclosures. Higher up still, Hartside cottages were in good order, with slated roofs. There was a fine display here of blossoming Bird-cherry in the garden hedge. The ground hained or cultivated for hay for winter food to the stock is very superior to that at Milkhope and that at Blindburn, and other sheep farms in Upper Coquetdale, where the soil is so scanty and the climate so severe, that only a thin wiry herbage, even although the entire home manure is applied to it, can be forced to grow. From this platform there opened out a spacious amphitheatre within the hollow of the hills. Chesters and Prendwick's paley-hued pastures, dark Hogden with its peaked and cairned top with Ewartly Shank, a new and clean looking shepherd's house, in its bosom; Alnham Moor in an angle of the Breamish below the “Shank,” came in view. Breamish sweeps round the low hill (Meagrim) in front of us up to Linhope Cottage or farm, where Linhope burn enters it on the right at a bridge, and Breamish then wheels round a grassy-edged, flat heather-topped hill, where a new game-keeper's house has recently been erected,

and then above it we have Low Blakehope ; High Blakehope, still higher, being concealed in a "lirk of the hills." Cushat Law frequently showed itself as we came up.

Arriving at Greave's Ash, an abridgement of Mr Tate's description (Hist. of Club, Vol. iv., pp. 293-316) was read to the assembled members, who then dispersed, guided by the Rev. Peter Mearns, to examine its construction. Mr Tate's plan I may mention has been re-produced in Mr Gomme's work on Village Communities, the publisher having asked liberty. Since the Club's excavations, *Lycopodium clavatum* has taken possession of the floor of one of the hut-circles. Recently another broken quern has been found among the ruins by a shepherd, who presented it to Mr G. H. Thompson, Alnwick. We do not require to repeat what Mr Tate has already said so well.

The sheep tracks to the Linns are rough with heather and sharp stones. A fine broom-bush was blooming freely, for the soil is dry, but this is perhaps the nearest approach this shrub makes to the hills. The deep shady recess of the lower linns, where there are two waterfalls in succession, is the most worthy of a visit, for the open linn is a mere "spout." There are here under the shade some fine smooth masses of *Zygodon Mougeotii*, red *Bryum* tufts with purple apothecia, and green *Jungermannia*.

The following is a list of the best of the Mosses in the vicinity of the Linns :—*Dicranum majus*, *Bryum crudum*, *B. Wahlenbergii*, *B. pseudo-triquetrum*, *B. pallens*, *B. alpinum*, *Mnium stellare* (below the Lower Falls) *Physcomitrium ericetorum*, (abundant near the "Spout") *Isoetecium alopecurum*, *Hypnum heteropterum*, *H. commutatum*, and *Hookeria lucens*. The wild flowers were *Geranium sylvaticum*, Wood Anemone, Primroses, Tormenitl, Blue Violet, Milkwort, Fox-glove, *Lotus corniculatus*, *Lysimachia nemorum*, *Thymus serpyllum*, *Cardamine sylvatica*, *Chrysosplenium oppositifolium*, *Carex binervis*, *Pedicularis sylvatica*. It was too early for the *Hieracia*. The ferns were *Polypodium Dryopteris*, *Lastrea oreopteris*, *L. Filix-mas*, and *Blechnum boreale*. The Beech and Brittle-ferns escaped detection. The hollowed cavernous space between the banks and enclosing the two lower water-falls, is shaded with birches and mountain ashes. In one of these trees a pair of Ravens during the present spring had reared three young ones ; two of these had been either shot or captured by the gamekeeper, and the third escaped. A wicked-looking pole-trap was placed, for their capture, among the rocks on the

southern side. A pic-nic party visited the spot a short time after the Club, and a boy connected with it, climbed the pole, and incautiously placed his hand into the inside, and was caught, and with difficulty freed. This kind of trap, which has greatly thinned the native rapacious birds, is, I am told, now nearly out of the trade. It and the gun have done their work thoroughly up here. In Kidland scarcely a Hawk, Owl, or Raven is left. I have procured from one of the Club's draughtsmen, a sketch of an old Hawk-trap, to show this deadly implement. I hope



OLD HAWK TRAP.

the Raven that escaped was not the one that was shot in Cheviot during the winter, and sent to the bird-stuffer. Linhope Linns are much infested by Vipers. The first time I visited it, I came on a very lively one. It is exceedingly hot here in the summer season to tempt them to lie out from among the stones. Badgers are not yet extirpated; at least were not a few years ago. Foxes lie among the glitter lower down the watersides. There is no scarcity of foxes among the hills, and drier peat-mosses.

The Ring-ouzels were singing. We were told that the game-keeper shoots every one of these interesting birds that he comes across. Their scent misleads the dogs in grouse-shooting; a very poor excuse for destroying them. Other birds noted on the Breamish during the day were the Cuckoo, Larks, Lapwings, Pipits, Wheat-ears, Whin-chats, and Sand-pipers in the lower reaches. Swifts were far abroad; House Martins and other Swallows at Branton.

The Linhope burn descends from a grassy upland depression or meadow, with two or three stunted trees midway up its course, and falls, open to the day, suddenly down a gap over a ledge of brown porphyritic rocks, with only a few air-sparkles to mark the commotion, into a dark peaty-brown basin, which has a dwarf bush of scrubby *Salix aurita* at its lower outlet. The estimated height of the fall is 48 feet. It is remarkably tame in summer, although in winter it lifts up a hoarse voice in the wilderness, and is then known as the "Rowtin Linn." Oak fern grows among the rocks. On the opposite hill-side, in a wooded ravine descending from the Hedgehope back-bogs, were two dashing white linns flashing in the light, much finer objects than the naked Linhope. This is on Hetburn; a bare boggy grey-tinted ground accompanies it far up the hill-side. The united streams turn in a different direction, almost at right angles, to form the ravine in which lie the lower linns. Stanedrop or Stander-hope—a projecting boss of rock, rising out of a green base, stands up the "slack." Far off is Cairn Hill with its conical black peak. The Thieves' or Salters' road passed between it and Usway Ford; and lower down the country it crosses Chester Hill behind Prendwick. At the shepherd's house, and the shooting-box, a bridge crosses the Linhope burn. There were as yet no ferns on the bridge. *Pyrethrum Parthenium* grows on the walls; a garden escape.

During the day thunder clouds encircled the hills all round us, and we repeatedly heard the peals, like explosions of artillery. Lower down the country, a heavy day's rain was experienced, but we saw only the outskirts of it, in front of us at Brandon. Linhope is rather dangerous ground in thunder storms; two days afterwards a lamb was killed by lightning at Ewartly Shank.

As we returned after passing the Greave's Ash camps, two or three tombs were remarked on the roadside near the wall of the

enclosures for grass, in a line with Cunion Crag. Some of the detached crested crags, on the moor-edges near, might have formed pretty rock studies. Some of them are notched like a cock's comb. In descending there were some curious presentations of the ends of hills, and glimpses of country of strange aspect, that were unmarked on the upper hill platforms.

Simonside and Tosson Hills were glittering in the sun-light beyond the elemental commotion that intervened, and laid dark shadows on the intervening heights. We did not expect such a diversity of prospect merely by turning our faces in the downward direction.

Several participated in Canon Ilderton's hospitality, and in that of Mr Hall at the farm house. Afterwards Brandon was passed, and we turned up near it by a steep road for Low Hedgeley, where heavy rain had fallen. The site of the old grave-yard was pointed out. Like Branton, the church here was annexed to Eglingham, to which probably both had originally belonged. At Hedgeley there is an extensive provision for cattle-sheds, and stabling, and barns.

The dinner was in Mr Huggup's granary.

Mr John Scott Dudgeon, the President, occupied the chair, and among those present, were the Secretary; the Rev. J. Walker, Whalton; Mr Adam Robertson, Alnwick; the Rev. Ambrose Jones, Stannington; Capt. Forbes, R.N., Berwick; Mr E. Willoby, Berwick; Dr. Snodgrass, the Manse, Canonbie; Mr James Thomson, Shawdon; Mr J. C. Hodgson, Low Buston; Mr Hedley, Cheviott; Mr S. Mason, Alnwick; Mr James Heatley, Alnwick; Mr J. Roscamp, Shilbottle; Mr R. G. Bolam, Berwick; Rev. W. D. La Touche, Warkworth; Mr M. H. Dand, Hauxley; Mr R. G. Huggup, Gloster Hill; Mr C. B. P. Bosanquet of Rock Hall; Mr R. Huggup, Low Hedgeley; Col. Carr, Dunston Hill; Mr W. N. Strangeways, Newcastle; Mr W. Lyall, Newcastle; Mr G. H. Thompson, Alnwick; Mr W. T. Hindmarsh, Alnwick; Mr L. C. Chrisp, Hawkhill; Dr. Edward Johnson, Kelso; Dr. Robson, Alnwick; Mr J. J. R. Storer, Alnwick; Mr Paynter, Alnwick; Mr George Bolam, Berwick; Mr J. J. Horsley, Alnwick; Mr C. Moore, Alnwick; Mr Andrew Thompson, Glanton; Mr E. Thew, Birling; the Rev. Peter Mearns, Coldstream; Dr. A. J. Main, Alnwick; Mr R. Middlemas, (Treasurer), Alnwick; Mr J. L. Newbiggin, Alnwick; Mr John Bolam, Bilton; Mr T. Mathison, Wandylaw; Mr T. Cook,

Alnwick; Mr R. Amos, Alnwick; Mr G. Bolam, Bilton House, Lesbury; Mr W. B. Boyd of Faldonside; Dr. Charles Douglas, Kelso; Mr J. B. Boyd of Cherrytrees; Rev. David Paul, Roxburgh; Mr John Turnbull of Abbey St. Bathans; Major Paton of Crailing; Mr Frank Chrisp, Prendwick; Mr George Thompson, Reaveley; etc.

Mr George H. Thompson exhibited two curious brass patellas or skillets that had been found while draining near Felton. Each of them had been hammered out of one sheet of brass. Photos have been secured of both, for illustrations, when room can be afforded. A few antiquarian objects have been found at Reaveley, within recent years; among others a brass three-legged pot, and a copper-bowl filled with coins, which are now at Harehope.

The following were proposed as members at this meeting. 1, the Rev. Charles F. Thorp, Beadnell Vicarage, Chathill; 2, H. H. Craw, West Foulden, Berwick; 3, Major A. H. Browne of Callaly Castle, Whittingham; 4, Capt. Walter Macmillan Scott of Wauchope, Roxburgh; 5, John Cay, W.S., Edinburgh; 6, George Logan Broomfield, writer, Lauder; 7, Lieut.-Colonel Rowley R. C. Hill, 31st Regt., Lowlynn, Beal; 8, Gerard F. Towlerton Leather, Middleton Hall, Belford; 9, the Right Hon. Earl Percy, Alnwick Castle; 10, Frank O. Chrisp, Prendwick, Northumberland; 11, George Dixon Atkinson Clark of Belford Hall; 12, Richard Welford, Gósforth, Newcastle; 13, Dr. Robert Barker Robson, Alnwick; 14, George Tate, Brotherwick, Warkworth; 15, Rev. Robert Mitford Ilderton, Whitburn, Sunderland; 16, Rev. William Meyler Warlow, Kelso; 17, Robert Redpath, *Journal* Office, Newcastle; 18, Rev. William Taylor, Whittingham; 19, Andrew Thompson, Glanton; 20, John Cairns, Alnwick.

Several searches were made in the neighbourhood for a few days previous and subsequent to the meeting, for which room cannot be found in detail. Suffices for the present to say, that the Bird's Nest Orchis (*Neottia nidus-avis*) was picked up in Eslington Park (by Mr W. B. Boyd); the Broad-leaved Helleborine (*Epipactis latifolia*) in the damp clayey woods on the Aln, Coe and Edlingham burns; the Roebuck-berry (*Rubus saxatilis*) in Broad Wood on the Coe burn, and in Brislee wood; *Listera ovata* and *Carduus heterophyllus* in Broad wood; *L. cordata* on the heaths at Blackcock Hill, and on the Coe Crags, &c.; *Vaccinium*

Vitis idæa on the Blackcock Hill, Thrunton; *Trientalis Europæa* on most of the hills; Herb Paris (*Paris quadrifolia*) in Brislee wood; *Pyrola minor*, *Epipactis latifolia*, *Cardamine amara*, *Carex remota*, (also in the Corby Letch), *Athyrium Rhaeticum*, and *Nepeta Clinopodium* near East Bolton; *Scapania undulata* in Coe burn; *Dicranum fuscescens*, Coe Crags; *Parmelia lanata*, Coe Crags; *Salix phylicifolia* and *S. repens*, damp pastures, Rough Castle; *Stachys Betonica*, sparingly in several places; *Carex caespitosa* in swamps on the Coe and Edlingham burns; Guelder Rose and Bird Cherry in many localities; Adder's-tongue fern (*Ophioglossum vulgatum*) on the East Bolton Hills and old grass lands, and near Thrunton Tile-sheds; Moonwort (*Botrychium lunaria*) on Rough Castle at the border of Rimside Moor; and most abundant in old pasture at Lilburn Hill. Scots pine roots and fallen trees, supposed to be native at Overthwart Moor, and the Black Lough (Aydon Forest), and at Rough Castle Moss, Rimside Moor; *Genista Anglica*, on Blackcock Hill, near a great cairn; *Valeriana dioica* in all the marshes; *Veronica montana* in most of the damp woods; *Carex sylvatica* and *lævigata*, Corby Letch; *Weissia cirrhata* on rocks at Jenny's Lanthorn. *Jungermannia furcata*, *J. nemorosa* and *J. scalaris*, Coe Crags and Coe burn; *Peltidea rufescens*, Coe burn; *Sphaerophoron Coralloides* and *Cetraria glauca*, Coe Crags.

The birds noted were the Willow Wren, Lapwings, the Cuckoo, Curlews (numerous at East Bolton), Herons, Larks, Plovers; Starlings, large settlements at Jenny's Lanthorn, in the Corbie Crags (Aydon Forest) and especially at the Coe Crags; Kestrels at Corbie Crags and Coe Crags; Sparrow Hawk at Coe Crags; Black-cap Warbler at Bolton House, and in Brislee wood; Whitethroat, scarce, (Brislee wood); Wood-wren frequently heard near East Bolton, and in Broad Wood; Pipits on East Bolton hill, scarce on the Rimside moor edges; Titlark in Broad wood; Sandpiper nesting by the Aln, near East Bolton; Wheat-ears at Overthwarts, and on the summit of the Coe Crags; Redstart near Mile. The Raven Crag, which lies beyond the Coe Crags, is now deserted by the Ravens, which have not been seen there for 10 years. The keepers shot the last of them.

The Badgers still frequent Thrunton Crags, but I am told the rabbit-catchers contrive to smuggle several of them away.

The "Memoir on the Geology of the Cheviot Hills (English side), by C. T. Clough, M.A., F.G.S.," is now in print, having been issued by the Geological Survey in 1888.—To it attention is directed, as of permanent value.

UPPER LIDDESDALE.

THE place of assemblage for Upper Liddesdale was at Newcastleton on June 26; when twenty-four obeyed the call. The Club had visited this classic vale on the same day in the year, just twenty years ago, when they held a joint meeting with the Dumfriesshire and Galloway Natural History Society. On that occasion they explored the vale of the Hermitage Water, and the ruins of the famous castle of Hermitage, originally connected with Lord Soulis, the wizard knight of Leyden's ballad, and afterwards by the Douglasses and other local potentates. Of that company there was only one representative present—Mr R. S. Murray, formerly of Hawick, now the chief of the staff of the *Newcastle Journal*. I avail myself of his Report, but chiefly follow, almost verbatim, the itinerary of Mr Edward J. Wilson, then of Saughtree School, who had carefully studied the typography of this interesting district. We had also as guide, the Rev. Alexander Wilson, assistant minister in charge of Saughtree Mission Church. The day was most favourable. The balmy air, pastoral and literary associations, and the views of the green and partially wooded valley, and the dark enviroining ridges, oblivious as every one was, of the lawlessness of its past history, were of the most pleasing character. There was nothing particular to draw out rapturous admiration, but a "sober certainty of waking bliss," prevailed to the close of a memorable day. Looking back on the scene of the day's outing, Liddesdale may be characterised as a mountain environed basin, lying between the sloping sides of ridges or "rigs" of more or less altitude; the narrow main valley more or less cultivated, cultivation occasionally broadening towards the hills on the right hand in going up. Sheltering plantations add greatly to the variety and amenity of the prospect. The river runs in this its summer tenuity, with lenient flow, mostly on a level; but its channel is strown with mighty boulders, several of them of blue trap, tokens of a much more turbulent career, when the winter torrents unite and sweep all before them, including the ancient glacial-borne rocks of the till. The marginal formations appeared to be Tuedian sandstones and limestones, with marly and clayey scaurs.

About a score of gentlemen collected from the wide district embraced by the Club, assembled by the morning trains, and breakfasted at the Commercial Hotel (Mr John Scott's), after

which the company started in two brakes, brought from Canonbie in the preceding evening, for Upper Liddesdale.

I shall now follow closely Mr Wilson's indications, which he drew up for the Club's use, interpolating here and there a few additional remarks.

Newcastleton is more commonly known as Copshawholm, its original name, in contradistinction to Old Castleton, now comparatively effete, except that it continues to be the site of the parish church. Mr Wilson takes Copshaw to be derived from *Kipp* a hill, and *shaw* a wood; I would rather say that it had been a *coppice* once, a brush-wood; *holm* is a common term here for a bit of level ground on the banks of a river. In the upper reaches of the valley, the people speak of going to the *holm*, when speaking of proceeding to their capital. They speak of "Liddesdale Dews," and "Castleton Clogs," and impudently ask visitors from the town, where do you come from? The expected answer is "Castleton." "Then where are your clogs?" is the forthcoming reproach. This little bit of folk-lore was picked up at the base of Peel Fell.

The village, continues Mr Wilson, consists of a long street having at regular intervals, three spacious squares from each corner of which run short streets at right angles to the main street. A handsome Mission Church in connection with the Established Church, stands near the Railway Station, which was opened in 1889. The other places of worship are the U. P., Free, and E. U. Churches. There are two lending Libraries and two Hotels.

The village occupies the site of the farm of Park.

"Johne of the Parke
Ryps kist and ark,
For all sic wark
He is rycht meit."

Maitland's Complaynt.

Patrick Hepburn, Earl of Bothwell, in virtue of his office as Lieutenant of the Scottish Marches, in an expedition against the Armstrongs on the West Border, where he was accompanied by the Laird of Drumlamrig, the warden of that March, was twice defeated by the banditti under John Elliot of the Park. (See Ridpath's *Bord. Hist.*, p. 584, foot note). One of our poetical members identifies him with "Little Jock Elliot;" but

there is another claimant to that title, as appears from an original song in the Wilkie MSS., which I have. However, we may give a quotation, as being appropriate to the locality, from "Mr Matthew Gotterson's" spirited effusion.—

"I vanquish'd the Queen's lieutenant;
Her fierce troopers I made to flee;
My name it is little Jock Elliot,
An' wha dar' meddle wi' me.

"I ride on my fleet-footed grey,
My sword hanging down by my knee;
I ne'er was afraid of a fae,
Then wha dar' meddle wi' me.

"Doon by the Deadwater stank
Jock Fenwick I met on the lea,
His saddle was toom in a clank,
An' wha dar' meddle wi' me."

Leaving Newcastleton by the road for Jedburgh, and having the river Liddel on our right hand, we soon observe the farmhouse and steading of Whithaugh (pronounced Whittock) standing on the east side of the river, surrounded by trees. Here stood an old tower formerly belonging to the Armstrong clan. (See inscription on tombstone in Castleton Churchyard of one of the last of the Armstrongs of Whithaugh, in Bruce Armstrong's "Liddesdale," foot note, page 86.) The last Mr Elliot left the estate to his nephew, a Mr Little. Mr Little died some few years ago; and it is now in the hands of his executors, but tenanted by Mr George Oliver. Once when Armstrong left Whithaugh to visit his estate in Ewesdale, Taylor, a freebooter of Bewcastle, robbed the Tower. Armstrong in retaliation burned Taylor's house down.

Roan farm is shortly passed on our left, standing a little off the road, nicely seated on a wooded knoll. Here stood the Roan Peel Tower.

Brox, a wayside cottage between the road and the railway at the southern end of a wood covering a steep brae, is interesting for its name.

Wild roses bloomed brightly by the road-sides; some of our members who came from Carlisle that morning had also remarked how profusely they flowered near Carlisle. Owing to early frosts, the blossom of the Hawthorn did not set this season, so that there were scarcely any *Haws*; on the other hand, *Heps* continued long into the winter, along with a few Honeysuckle

berries. Wild berries have rarely been scarcer.

Priest Hill (669 feet) lay to the right between Whithaugh and Brox.

Sandyholm on our right, is one of those "handy" places, sufficient to keep a family in comfort. A neat cottage and the requisite farm buildings for such a little place, makes it a thing of beauty from the passer by road or rail. Such desirable places are now gradually being incorporated into the bigger farms. Mr John Elliot, the tenant, afterwards joined the company in their excursion and at dinner. He was thoroughly conversant with the history of every place of note in the dale. He was fresh and hearty when we saw him, but died on the 26th September, in his 82nd year.

We shortly after pass over the bridge across the Hermitage Water, which, a few yards further down, joins the Liddel. On the peninsula formed by the junction of the two streams, are one or two buildings of some interest.

In regard to the Blacksmith's shop at the end of the bridge, a story is told connected with the juvenile exploits of Andrew Scott, afterwards Professor of Oriental Languages; who was the son of Scott of Lower Burmouth, a schoolmaster in this parish and author of the "Beauties of the Border," and "Border Exploits," both of topographical value. Andrew, while about 19 years of age, walked back and forwards, to and from his father's residence, every morning and evening, to Castleton, a distance of upwards of 5 miles, to teach in a school. One day he called on the blacksmith of this smithy, provided with a pocket full of pennies, and asked the smith whether he would allow him a blow with the fore or sledge hammer at the horn or rounded point of the anvil for a penny. The blacksmith acquiesced. Throwing a penny on the hearth, Andrew took his shot, but failed to obtain the desired effect. Another penny, and yet another, when off came the horn of the anvil, and the scholar walked out quite satisfied with his strength of arm and determination of will, leaving the blacksmith to provide himself with another anvil out of the threepence of stakes. Near the church, which also stands on the peninsula before mentioned, is a small cottage, till recently used by Miss Telfer, daughter of James Telfer, the poetic schoolmaster of Saughtree, as a school, in the walls of which is an inscription portrayed in Bruce Armstrong's Liddesdale, p. 90.

The church was erected in 1808, and on the opposite side of the river from where it stands is a cottage occupying the site of Westburnflat, where lived Willie Armstrong, the last Border reiver, who was tried and suffered death at Selkirk.

Passing the small farm of Powisholm, we now cross the Liddel, and reach the Manse on our left. On the right, placed on a height with a few ash trees round it, is a cottage called Newstead, which can be plainly seen from the head of Liddesdale. There are hereabouts, quantities of Raspberry bushes in the woods, from seeds dispersed by the Wood-pigeons; and Wild Roses, Fox-gloves, and *Geranium sylvaticum*, were abundant.

The high ground on our right all the way up the valley, is about two miles west of the Border Line, until immediately at the head of the valley; where the valley sweeps to the east, causing the boundary line to cross the valley of the Liddel at Deadwater. Here a modern stone wall ascends the south-western slope of Peel Fell "on the tap o' the hill where the wind and weather shears." (*Guy Mannering*, chap. xxxvi.)

Down those hills that lie to our right, between us and the horizon, the tracks of deeply-worn mountain torrents may be seen distinctly. This is more especially the case on Larriston Fell.

The road ascends and passes over Aislie Moor, where Claverhouse's army camped in 1685. We next reach Castleton churchyard, at the south-western corner of which stood the Manse, where Armstrong the poet was born, on the edge of the precipitous bank overlooking the Liddel. A little farther up was the site of Liddel Castle, which was examined on the return journey. On the opposite side of the road are many vestiges of the village of Old Castleton, and the socket or base of a cross 28 inches square, the socket holes being 8 inches square. On the moor, further to the English border, is a well preserved round camp of no great strength.

Crossing the Harden Burn, we have the farm of Mains lying on our left in the *holm*. The old border keep here is now entirely demolished. The betrayer of Hobbie Noble dwelt at the Mains.

"At Kershope foot the tryste was set,
Kershope of the lilye lee;
And there was traitor Sim o' the Mains,
And with him a private companie."

“ But the land-serjeant’s men came Hobbie before,
The traitor Sim came Hobbie behin ;
So had Noble been wight as Wallace was
Away, alas ! he might na win.

“ They hae taen him on for west Carlisle.

“ Now fare thee weel, sweet Mangerton !
For I think again I’ll ne’er thee see ;
I wud hae betray’d nae lad alive,
For a’ the gowd o’ Christentie.

“ And fare thee weel, sweet Liddesdale !
Baith the hie land and the law ;
Keep ye weel frae the traitor Mains !
For goud and gier he’ll sell ye a’.

“ Yet wad I rather be ca’d Hobie Noble,
In Carlisle, where he suffers for his fau’t,
Than I’d be ca’d the traitor Mains,
That eats and drinks o’ the meal and maut.”

Ballad of Hobbie Noble.

On the extreme left are the hills bounding the western side of the Hermitage valley, and far away to the head of the valley by the southern end of Arnton Fell (1464 feet) we can descry the Dinlay (1287 feet),

“ The Dinlay snaw was ne’er mair white,
Nor the lyart locks of Harden’s hair ;”

Hazelyside Rig (1050 ft.), Roan Fell (1862 ft.), Hartsgarth Fell (1806 ft.), Maiden Paps (1677 ft.), Scawd Bank (1792 ft.), Hermitage Hill (1821 ft.), Whitterhope Edge (1196 ft.), etc., etc.

After Harden came Florida, Dykerow, and Kirndean, and on the opposite side of the river Whitehaugh. Dinlabyre, a large old looking white house, once a stronghold, shaded with trees, where is the mortuary of the Rutherfords and Olivers, stands on the Boghall burn. Clintwood old castle stands also near this burn at some distance up. Near Dinlabyre at a cottage, a rude painting of Hermitage Castle was shown. The wood clothing the slope from the road is thickly interspersed with the small-leaved Maple.

At the foot of the Staneshiel burn are some ruined cottages. At the head of this burn, far up on the road towards Bloodybush Edge, is a small shooting-box, close to a waterfall called Kiddslinn, or Kitty Linn, which Mr Wilson hints is “a likely spot for the botanist !” Bound to our carriages we cannot tell, but it is to be hoped that not only in it, but in all the deans there grow

good plants, to reward future research. Proceeding from Staneshiel burn foot we shortly reach Hewsbridge. A new bridge was built here in place of the old one, whose approach had become dangerous. (Mr Wilson sent in September, examples of the plants growing on the old bridge. They consisted of *Epilobium montanum*, *Geranium Robertianum*, *Asplenium Rutamuraria*, *Asp. Trichomanes*, *Lastrea Filix-mas*, *Athyrium Filix-fœmina*, and *Jungermannia Hepatica*.) A thicket of *Equisetum Telmateia* grew at the bottom of a moist slippery bank of clay.

The Larriston burn unites with the Liddel here, originating from Foulmier Height (1300 ft.) on our right. The sites of two old towers were pointed out across the stream. At the shepherd's cottage at Steele Road End we got our first view of the upper reaches of Liddesdale. The Melancholy Plume Thistle (*Carduus heterophyllus*) grows in the moist plantations hereabouts. On our right are the wooded parks of Larriston, which time did not permit us to visit. Larriston, or Lauriston is the ancient house of the Elliot family, to whom the Eliotts of Stobs were related, an offshoot from whom founded the house of Minto. They were a powerful and warlike clan in the old Border days, and had several strengths.

“ Lock the door, Lauriston, lion of Liddesdale,
Lock the door, Lauriston, Lowther comes on,”

sings the Ettrick shepherd in the well-known martial song, which echoes the strains of Border feuds, the words being particularly applicable to the country held by the Elliots, which might well be called the door into Scotland through the Middle Marches. Near Larriston was the Breaken or Pricking Haugh Tower, (Pickeringhaw, Map of 1590) now entirely demolished. At Larriston, Prince Charles, the young Pretender, slept a night before continuing his march towards England. The bed of the Prince still remains in the house.

In front, splitting the valley into two parts, the Dawston Rig protrudes from the base of Dod Fell and the Whele Rig in the extreme distance. The abrupt crest of Carlin Tooth, and further east the Peel Fell and Deadwater Fell are easily seen.

Larriston Fell is on our right, a strong dark barrier, reaching to the Deadwater gap. It is from the prevalent gritty sandstone of the Upper Tuedian, on this range, that the geological term *Fell Sandstone* originated.

Riccarton Mill on our left is the place where Scott makes Dinmont direct Harry Bertram to, (see "Guy Mannering," chap. XXII.) It remained a public house until a few years ago. The present tenant was the last licensed owner. At least one person has been drowned by falling into the mill-dam.

On the opposite side of the road is the neat tree-sheltered farm steading of Riccarton, on and near the foot of a burn of the same name, which descends from Arnton Fell. A tower stood a short way up the burn, the site of which is now occupied by a sheep-stell. This tower, of old called Rakestonleis, belonged to a branch of the clan Crozier.

Passing Burnmouth farm, and Pinglehole cottage, we reach Saughtree school, where lived for many years, and died, James Telfer, schoolmaster, poet and literateur, known and remembered by all friends of Border letters and lore. The present school house and school are new, and, but on a greatly enlarged scale, occupy the old site. The Mission Church erected by the late Duke of Buccleugh in 1876, is near, and not far distant hidden among trees on the margin of Dawston burn, are Saughtree House and farm steading.

Keeping straight on up the left branch of the valley which is here divided into two by the Dawston or Hudshouse Rig, (782 feet), we follow by the side of the Dawston burn, the Jedburgh road, shut in by precipitous banks, and under the viaduct of the North British Railway near Saughtree Station. The most visible rocks are Upper Tuedian Sandstones. Bilberry and short heather are conspicuous on the right hand side. The carriages stopped at the heap of stones on the platform on the left hand, which also shows some indefinite ruins, possibly sheep folds, called "The Abbey," although there is no record of any ecclesiastical structure ever having occupied it. The Abbey Sike joins the Dawston burn here. Up the deep valley, which has steep sides clad with grass and ferns, with bits of naked scaur near the burn, where Cliffhope Burn and Alison Sike unite, is the Saughtree Grain, a shepherd's house, where for six months in the winter the inmates do not see the sun. The glen itself is called Cliff-hope, and it rises between the Mid Hill (1423 ft.) and the Lamblair Hill (1635 ft.) The Abbey Knowe, a conical hill overlooking the "Abbey," is 1000 feet of elevation. The Jedburgh road continues to follow the mountain pass to Singdean shepherd's cottage and then crosses by the Note or Knot of the

Gate towards Hyndlee, Wauchope, Wolflee and Rule Water.

It was in the vicinity of the "Abbey" that two ancient broken crosses were found; the first about 1850, was discovered among

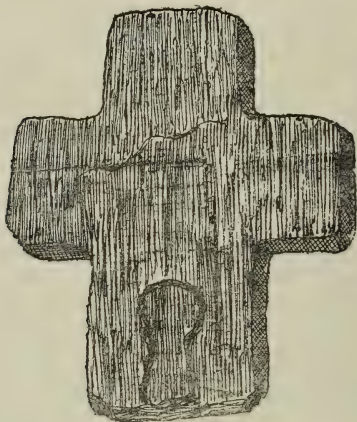


FIG. A.—CROSS WITH HANDLE OF SWORD.

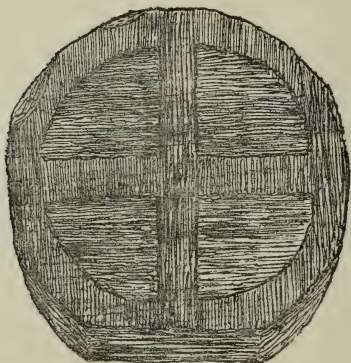


FIG. B.—FIGURE OF CROSS

the structureless ruins of the "Abbey," and has sculptured the handle of a sword, the remainder being lost. It is nearly four feet long (fig. A.) This is apparently a memorial cross. The second was found in the Abbey Sike, and only the rounded head with a cross on each side is left. The fracture is recent, and appears to have been purposely done to separate the head from the shaft. It has the character of a Boundary Cross (see fig. B.) Both figures are pen and ink transfers by Mr Wilson, from one of Mr Bruce Armstrong's plates, *Hist. of Liddesdale*, p. 90. There may be some doubt about the exact spot where the first cross was found. Mr Bruce Armstrong says it was "not far from the Abbey syke." The crosses were both presented by Mr Elliot Stavert to the Hawick Museum, where they are now safely preserved from the ill usage and mutilation to which they had been subjected, when standing out of protection, on the wild. Mr David M. Watson, secretary of the Archæological Society, has showed me Mr Stavert's letter, with liberty to take a copy, so far as relates to the cross. It is as follows:—

SAUGHTREE, *July 9, 1880.*

DEAR SIR,—I have had very much pleasure in despatching to-day by rail the Stone Cross [Fig. B.] which the Rev. Mr Birrel has mentioned to you. . . .

The Cross was found by one of my shepherds—John Chisholm—early in May last in the Abbey Syke. The Syke is a small tributary to Dawston Burn, and not far from the *find* of the former Cross now in your Museum.

I may mention for Chisholm's credit, that in the first instance he noticed a small portion of stone bearing church marks, and thinking there might be something more, he unbedded the Cross as now presented.

I am, dear sir,

Yours faithfully,

D. WATSON, Esq.

ELLIOT STAVERT.

Mr Chisholm is now a farmer on the North Tyne. The shaft was reported to be still in the burn. On the subsequent day the shepherd at Singden told me that there is a portion of the shaft of this or another cross in a stone dike in the pass; possibly the remainder of A. There was no time to look for it. My own conjecture about the name Abbey and Abbey Syke is that the boundary of the Church-lands belonging to Jedburgh Abbey lay in the vicinity, and that the Boundary Cross was one of several that had indicated the line of separation of their property from that of lay proprietors. The entire lands of the Abbey in this district are pointed out in the "Acts of Secret Council." "Thir

ar the names of the lands and teinds.—The hail kirk lands belonging to the abbacie of Jedburgh, lying within the lordship of Liddisdaill, viz: the lands of Dastoun burne, Cheifhops (Cliffhops), Over and Nether Syngdene, Huddishous, Ormescleuche (Wormsleugh), Quteilrig (Wheelrig), Peil, Myredykis, Belsches, Porter-landes, Abbot-shawes, with all their pertinentis.

. The lands of Deidwater and sicklyke, etc.”
(Hist. of Liddesdale, pp. 91, 92). Belsches lay elsewhere.

Striking the hill on the right, the party were soon upon Dawston Rig. On the flattish top there are great beds of Cotton Grass (*Eriophorum*) which had ripened its seeds more profusely this year than for many previous seasons. This was the supposed scene of the Battle of Daegsastan. Mr Murray now takes up the narrative. “The summit looks down upon the slack through which the railway ascends from Deadwater to Saughtree. Here the company were joined by two shepherds, well versed in local matters, and by their aid a very thorough investigation was made of the spot. There is no doubt whatever of its richness in antiquarian interest. Across the ravine to the east known as the Chaldron or Cauldron Burn, from the deep holes worn by the water in the mountain limestone which forms part of its bed, is the Wheel Rigg, where the Wheel Causeway (a name here given to the Maiden Way) crosses the hill. A little to the right is the site of Wheel Chapel, which was a small ecclesiastical structure connected with Jedburgh Abbey, to which the lands were originally attached, and of which only a few traces remain. The Catrail or Picts’ Wark Dyke, which crosses the back-bone of Scotland from Galashiels to the upper valley of the Slitrig, re-appears here, where it is quite visible debouching into the burn, close to the railway, and to the British camps which first attracted the notice of antiquaries to this place. Of these camps there are three; one of them high on the shoulder of the hill, has been converted into a sheep-fold. Two others lie side by side just under the line of the railway, and in one of them, along with others more ruinous, is the most perfect specimen of a British hut circle to be found in the whole district. Meanwhile on the sloping ground above these camps, the evidences of an extensive battle-field are unmistakable, even if it had not been rendered certain by the finds of flint arrow-heads and other weapons picked up from time to time. The eye can easily follow the old earth-works, and the field, besides a huge

cairn, is simply dotted over with heaps of stones which appear to have formed covers over the burial places of slain warriors. It has been but little disturbed by cultivation of any sort, and we therefore find it mainly as it has been affected by the ravages of time."

Leaving the main body to discuss the *pros* and *cons* of the Battle of Dawston Rig, a detachment descended the steep bank to a tempting looking crag beside the deeply cut Caldron Burn, which has here excavated the sandstone and limestone ledges into deep pots or water-worn pools, called the "Caldron Pots," into which the water leaps successively, and by its restless circling prevents the bottom from being visible. Butterwort grew in the marshes on the west side. On crossing, the Beech Fern and the Brittle Fern appeared; the latter grew on both sides on the moist rocks; the former was very luxuriant. *Lactæa dilatata*, *L. oreopteris*, and *L. Filix-mas* grew here also. *Rubus saxatilis* threw out its tendrils from the rock-chinks; *Geranium sylvaticum* was in bloom; and *Vaccinium Vitis-Idæa* hung out its waxen bells. Half-way up the sandstone rock face grew a band of *Neckera crispa*, a moss indicative of dryness, and unrecorded I believe for Roxburghshire. Here appeared also the Early Purple Orchis (out of bloom); the Woodruff; *Salix phyllificifolia* and *S. nigricans*. This crag appeared to be the proper place for the Ring Ouzel or Rock Starling to nest in, but no nest was visible, although the bird itself is frequent all over the uplands here. After scrambling across again, *Carex Oederi* was prevalent in the moist sykes along with other water-weeds. The Whin-chat and Stone-chat were both seen on the grassy slopes. Wheat-ears were getting scarcer; some migratory parties were seen at Saughtree during my short stay there.

The more numerous party were intercepted descending from the hill-top, and all assembled within one of the British camps looking down upon the Liddel, where Mr Hardy read to the company the extract from Bede's Ecclesiastical History (Stevenson's Translation), which with the passage in the Saxon Chronicle, in all likelihood adapted from Bede, forms our only record of the battle of Dægsastan. It is as follows:—

"Chap. xxiv. [A.D. 603] Ædilfrid, king of the Northumbrians, having vanquished the nation of the Scots, expels them from the territories of the Angles. § 80. At this time, Ædilfrid, a most valiant king, and ambitious of glory, governed the kingdom of the Northumbrians, and ravaged the Britons more than all the great men of the Angles, inasmuch that he might be compared to Saul, once king of the Israelites, excepting only

this, that he was ignorant of the true religion. For he conquered more territories from the Britons, either making them tributary, or expelling the inhabitants, and planting Angles in their places, than any other king or tribune. To him might justly be applied the saying of the patriarch blessing his son in the person of Saul :—" Benjamin shall raven as a wolf ; in the morning he shall devour the prey, and at night he shall divide the spoil." [Gen. XLIX., 27.] Hereupon, Aedan, king of the Scots that inhabit Britain, being concerned at this success, came against him with an immense and brave army, but was beaten by an inferior force and put to flight, escaping with a few only of his followers ; for almost all his army was slain at a famous place called Degsastan, that is Degsastone. In which battle also Theodbald, brother to Ædilfrid, was killed with almost all the forces he commanded. To this war Ædilfrid put an end in the year 603 after the incarnation of our Lord, the eleventh of his own reign which lasted twenty-four years, and the first year of the reign of Phocas, who then governed the Roman empire. From that time, no king of the Scots durst come into Britain to make war on the Angles to this day, viz. 730. (*Beda* by Stevenson, p. 11). A.D. 603. This year Ægthan, king of the Scots, fought against Æthelferth, king of the North-humbrians, at Dægsanstane, and slew almost all his army. Here Theodbald, Æthelferth's brother, was slain with all his band. Since then no king of the Scots has dared to lead an army against this nation. Hering, the son of Hussa, led the army thither." (*Anglo-Saxon Chron.*, by Stevenson, p. 11).

Mr Murray, who had the use of my papers, thus sums up. " The locality of this battle lies in dispute between Dalston in Cumberland, and this place, Dawston Rig, and in our opinion the evidence in favour of the latter is very strong. Bearing in mind that the principal brunt of the battle was borne by the Scots, who must have come either from Galloway or Argyleshire, and bearing in mind that the Roman road (the Maiden Way) crosses near this place, and also the Catrail or Piets Wark, we should find it more likely that the northern army came over the hills, intending to descend into Bernicia by North Tyne, than that they found their way into Cumberland. Bede calls it ' a famous place '—it might well be famous from the abundance of ancient remains that are congregated in the valley. It may be conjectured that the Scots and their allies were induced to camp on this ground by the presence of the three large fortified British camps close together, with the hut dwellings that were doubtless then in good preservation. The rampart of the strongest of these camps seems to have been strengthened at certain parts, and this may have been done by Aidan's army. The battle, however, was certainly fought on the slope above, which is dotted over by the cairns, and which, opposite the Angles, was probably protected

by earthworks. In the opinion of Skene and others the occasion of the Scottish invasion of Northumbria was the rebellion of Theobald against his brother Ethelfrid, and it is possible that the Britons, whom Bede carefully distinguishes from the Scots, may have had little or nothing to do with the war. Others, however, consider that the Scots came to assist the Britons in their conflict with the Angles, and that the allusion to Theobald and his forces being slain, does not signify that he was in arms against his brother, but that he had been worsted by the enemy before Ethelfrid won his victory."

Mr Doughty and Mr Elliot joined us here. Mr Currie and Mr Mark Turnbull were early on the hill, but had to leave before the separate companies rejoined. The carriages came round by the road bordering the Liddel, and picked up the whole near Hudshouse, a farm-steading even in recent times, but now in ruins. There are here the scanty remains of an ancient tower of the Croziers. The gravelly haughs were mantled with a blaze of blooming wild-thyme. Beds of the black-headed *Carex riparia* clustered in the swamps. We passed round beneath Thorlieshope of which afterwards, and crossing the bridge at Saughtree House, regained the morning route; slackening for a little to examine the site of Liddel Castle, with its triple row of ramparts. The fine scaur on the river here is 94 feet high. The fresh, grassy, and partly wooded hollow on the opposite side, reminded several of the view of the banks of the Irthing opposite Birdoswald.

The present churchyard of Castleton is quite close to the site of the old Castle. In the churchyard is an interesting monument erected to the memory of Armstrong, the poet, (born 1709, died 1779) who was a native of the parish, and whose father and brother were both ministers of it. It also contains a stone recording the death of one of the last of the Armstrongs of Whithaugh. For inscriptions of these two tomb-stones and a figure of the first, see Mr Bruce Armstrong's *Liddesdale*, pp. 85, 86 and notes.

Although several had to depart by train, twenty remained to dine. In the absence of the President, who was otherwise engaged, Mr W. T. Hindmarsh, F.L.S., Alnbank, Alnwick, presided. The healths of the guides were given in addition to the usual toasts, with the thanks of the company. The house of the late Dr. Murray was visited to inspect some local antiquities, including the supposed old Key of Mangerton Tower, which was of the old barn-door type; the last hand-cuffs used

in the village (about 1794); a rapier from the district; several coins; and a brass mortar-gun from Hermitage. Here are kept two flags of the Castleton Friendly Societies, inscribed:

"By Friendship united,
In Affliction supported."

One of the carriages was utilised to take a party to Ettleton Churchyard, which opened up a view of a well cultivated country divided into fields stretching up towards the gradually lowered hill ridge on the south. Carbie Fell was in the distance, and the scarp of a sandstone quarry, said to yield good stones. The *Geranium pratense* grew by the wayside as it does up to Saughtree, and there was a wealth of blooming wild roses. The Ettleton stone cross was passed, and then the steep bank to the churchyard was climbed. The tomb-stones were in excellent order. We did not persevere to visit the site of the tower of the famed "Jock o' the Syde," nor Mangerton tower on the opposite side of the river. There was time after returning to see Newcastleton. Flower cultivation in front of the houses, and visible at the windows, and the fine wide streets, make it a model village.

To enable the company from the north to reach home, the North British Railway Company kindly allowed the Pullman to pull up for a few minutes.

There were present at this meeting, Mr William T. Hindmarsh, F.L.S.; Mr James Hardy, Secretary; Mr Middleton H. Dand, Hauxley Cottage; Mr Wm. A. Hunter, LL.B., Duns; Mr Alexander Bowie, Priory Hill, Canonbie; Mr John Elliot, Sandholm, Castleton; Mr J. A. Vernon, F.S.A. Scot., Hawick; Mr Charles Watson, F.S.A. Scot., Duns; Mr Adam Cochrane, jun., Galashiels; Mr James Woods, Galashiels; Rev. Alex. Wilson, M.A., Saughtree; Mr Edward J. Wilson, Saughtree School; Mr J. C. Hodgson, Low Buston; Mr Michael Muir, Fernlea, Selkirk; Mr F. E. Rutherford, Hawick; Mr David Watson, Hawick; Mr John Turnbull, Selkirk; Rev. Prof. Pollok, D.D., Halifax, Nova Scotia; Rev. Dr. Snodgrass, Canonbie; Mr William Doughty, Byres-foot Cottage, Canonbie; Mr J. D. Murray, *Journal Office*, Newcastle; Mr John Hogg, Quixwood; Mr Andrew Currie, Darnick; Mr Mark Turnbull, Dingleton.

The following were proposed for membership: Rev. James Steele, Vicarage, Heworth, Gateshead; Mr William Doughty, Byreburn-foot, Canonbie; Mr Mark Turnbull, Dingleton Mains, Melrose.

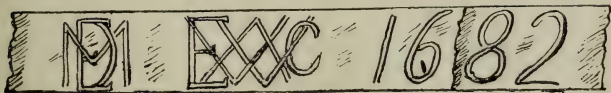
APPENDIX : UPPER LIDDESDALE.

SAUGHTREE, THORLIESHOPE, WHEELRIG, PEEL FELL, DEADWATER,
NORTH TYNE, KIELDER CASTLE, SINGDEAN, NOTE-O'-THE-
GATE, HEAD WATERS OF THE JED AND RULE.

DURING the Club's visit to Liddesdale, I stayed, by invitation of Mrs Johnston, for a few days at Saughtree House to investigate the neighbourhood. There is not space to enumerate all that was seen or learned, but an outline of what was more important may be summarised. Mr Edward J. Wilson has again supplied me with additional notes, which I can scarcely do justice to within our narrow bounds. The opening notices of the events of the first evening are chiefly his. I had then merely to do with what was shown under his and the Rev. Mr Wilson's guidance. On Monday afternoon, June 24th, I arrived at Steele Road Station to commence the peaceful "raid" of the Club. Steele Road Station is, I am informed, the nearest and best for access to Hermitage Castle and Hermitage Valley, and stands amid grassy slopes, forming part of the farm of Shaws, held by Mr Ballantyne, whose father is mentioned as a Nimrod in H. H. Dixon's book "Field and Fern."

On leaving Steele Road Station, on our right hand is a shepherd's cottage called Clench Head, at the head of a small ravine, where stood a tower, once occupied by a branch of the Croziers. The drive over the moor is unenclosed and has a naked aspect, but soon the wooded parks of Larriston, immediately in front, relieve the monotony of the scene, and at Steele Road End (another shepherd's cottage) the main road from Newcastleton to Saughtree is reached, and we are now really in Upper Liddesdale, or Liddel Head.

After arrival at Saughtree House, and tea, a visit was made to Thorlieshope (Thornlawishop, Thorneleshop) about half a mile to the east, on the banks of a small burn, which winds through a well wooded ravine—some of the wood having a native aspect. The house—near which are several old ash trees, a large two-storeyed white sandstone building, slated with large blue slates—has the entrance door at the south side. There are two carved stones, probably from the old peel tower, inserted in the western end wall; one is a human head surmounted with a broken canopy, the other is an oval smooth stone, like an ostrich egg; and there is another of these stones in the back part of the house, and some irregular arch work over the head of a window now built up. The walls at the west end of the building are fully a yard in thickness. The head of the front doorway has an inscription, of which the cut, from a drawing by Mr Wilson, is a copy.



INSCRIPTION ON DOORWAY.

In the interior, a heavy square sandstone for a cheese-press was noted. The steel implement like a pair of pincers, for "lug-marking" sheep, was of the modern pattern.

This dwelling, resembling Harden in situation and form, was the abode of a branch of the Clan Elliot. One of the occupiers is said to have been an accomplice of the thieves of Bewcastle and the English Border, carrying off the goods of his Scottish brethren.

By the alteration of the first and third letters, Sir Walter Scott used the name as his Charlieshope of "Guy Mannering." At the head of the glen, and immediately in front of the house, is a disused lime-kiln and quarry. Lime was burned here until a few years ago. About seven years ago, 26th July, 1882, a large flint arrow head was found in the garden, but was lost before any drawing or description of a trustworthy character was taken.

The Elliots of Thorlieshope seem to have been located at Meikledale, as seen by the following incomplete pedigree.

ROBERT ELLIOT OF UNTHANK=
Factor to Buccleuch.

1. Robert called "Bonny Hob," d. unmarried, s.p. Warded in Lochdun, anno 1569.		2. Adam Elliot = lived at Meikledale, having also Burngrains and Carrot Rigs as farms, died 1682, æt. 83. Very successful, leaving landed property to his 3 sons.		| Glendinning of Glendinning.	
1. Walter Elliot succeeded to Arkleton, d. 1702, æt. 68.		2. John Elliot succeeded to Elfgill and Midgeholm, Westerkirk, which he sold, and bought Thorlieshope, left 3 sons and 9 daughters.		3. William Elliot = | Scott of Merrylaw. was left Meikledale; was unfortunate, and left children in bad circumstances. Alive in 1698.	
Wm. Elliot = Ann, youngest dau. of Arkleton, died 1721.		William Elliot of Thorlieshope. Was obliged to sell Meikledale to his cousin William of Arkleton.		| A daughter of Christopher Irving alias "Kick-ma-leerie," who by fiddling left an estate of £800 per annum. One of his daughters got the lands of Hartsgarth, Langhaugh, Greenholm and Redhaugh in Liddesdale, and married Adam Beattie; the other who married Adam Elliot got Catlowdie in Nichol forest, Cumberland.	
Adam Elliot of Arkleton, was forced by his father's cousin, William of Thorlieshope to sell for £1900 Meikledale, to satisfy William of Thorlieshope and other creditors in 1725.		It was purchased by Wm. Scott of Rowanburn, a great cattle drover, who sold it to Mr. Laing, who in turn left it to Wm. Elliot of Borthwickbrae, son of John Elliot of Borthwickbrae, and Margaret Laing, Mr. Laing's youngest sister.		| Christopher, the eldest, turned smuggler.	
				| George, a great pugilist.	
				| Several daughters.	

At the extreme eastern part of the estate are the Thorlieshope Lime Works and Fairloans Quarries (freestone), the former of which, near the famous Deadwater Well, are still worked. The house of Thorlieshope and the whole estate are now the property of Sir Robert Jardine, M.P., of Castlemilk, Dumfriesshire.

Thus far I am indebted to Mr Wilson. We next visited the house of Mr Frank Turnbull, Mrs Johnston's chief shepherd, who is a collector of coins, flint arrow heads, and antiques. Attention was directed chiefly to what was local; his extensive collection of modern coins was of considerable money value, and in excellent preservation. There were several Edward I. silver pennies, one of the Durham coinage; a Henry VII. or VIII. silver noble (?); some Queen Elizabeth shillings; a Roman bronze (not local); a shilling of Charles I., found in the shepherd's garden at Wormsleugh. This last was of the milled sort, with the king's head, wearing a laced band, and an inscription, CAROLVS. D. G. MA. BR. FR. ET. HL. REX. On the reverse, an escutcheon of the arms divided by a cross, CHRISTO. AVSPICE. REGNO. The value XII is behind the head. These show at least that the people had money to lose. He had besides an iron sword of modern shape, with iron handle, about a hundred years old, found on Hudshouse Rig, supposed to be connected with the Highlanders of 1745, who coming down by the Note-o'-the-Gate at starvation point, fell upon the flocks, and one of them died by overgorging himself. According to another version: they stole some sheep at Hudshouse "and boiled them in an iron pot used for containing tar for buisting sheep. One of their number died from the effects of the tar, and a sum of money was given to Ringan Armstrong, the shepherd, for linen to bury him in. After the army left, Ringan gave the body decent burial, and the place is still known as the 'Hielandman's Grave.'" (Jeffrey's Roxburghshire, iv., p. 261). He had given another sword to the late Mr Oliver of Langraw. He had an account of four flint arrow heads, two of which he still retains. These are neatly chipped. The largest and finest was from a peat-hag on Cheviot, with which none of Dr. Evans's figures in "Ancient Stone Implements of Great Britain" correspond. The figure nearest to it, is Fig. 162 of L. Jewitt's "Grave Mounds," which is from Derbyshire, and is notched near the base, for tying to the shaft with a thong. The Cheviot flint however has a rounded-out arched notch in the centre of the base, and its two ears or lower barbs are rounded. It is $2\frac{1}{2}$ inches long; $\frac{7}{8}$ inch across the base at the ears; and $\frac{6}{8}$ at the notch; it is $\frac{3}{8}$ inch to the notch; the remainder is sub-lanceolate, as in Mr Jewitt's figure. He says it is not common in England. The second flint is a small one, and was dug up in his garden in front of his door. It is barbed unsymmetrically, with a stoutish stem, something like Dr. Evans's Figs. 303 and 304, from the Yorkshire Wolds, but neither exactly correspond with it. Its length is $1\frac{1}{2}$ inch; length of its stem $\frac{3}{8}$ inch; breadth of stem $\frac{3}{8}$ inch; breadth across the barbs $\frac{5}{8}$ inch. A third, presented to the Antiquarian Museum in Edinburgh, was found in the syke behind the Saughtree Mission Church. The fourth from Thorlieshope, he had seen, and compared it to No. I., perhaps on account of its size. None of these have any connection with the Battle of Degsastan.

What was said about flint weapons found near the battle-field, I did not hear. Perhaps these were the examples to which Mr Murray alluded.

Before leaving, we were shown on a mound overlooking a syke, to the west of the cottages, a good hut circle among the boggy and grassy bent. It had a well marked raised outer ring : there was a lunate compartment in it at one side. Frank had dug out another of these summer residences of the ancient dwellers, without result. *Carex ovalis* grew among the rough pasture.

July 25. I was out early in the morning to have a look round. Although liable to become misty, apparently the atmosphere is comparatively dry, as the stone walls are not much lichenized. *Lecanora parella* was the most prevalent species. *Draba verna* was frequent on the bare spaces ; and *Cardamine hirsuta* on the wall-tops. In the wood encircling Saughtree House there grow much *Valeriana Pyrenaica*, either planted or a garden escape, and the familiar Herb Gerard (*Egopodium Podagraria*), indicating old settlement. In the garden were cultivated *Cistopteris fragilis*, *Polypodium Dryopteris*, and *P. Phegopteris*, *Asplenium Adiantum-nigrum*, and *Polystichum aculeatum*, all originally from the hills. In the house was preserved a flourishing plant of *Asplenium viride*, reckoned also to be native ; and on Saughtree Bridge, across the Dawston Burn, *Cistopteris fragilis*, and *Asplenium Trichomanes* grew in the chinks. The Parsley Fern was reported from several places on the Fells. *Tussilago Petasites* (Butter Bur) was in magnificent foliage, by the water side. Frank Turnbull, who had joined me, said that this plant was unknown in the hill district, and that a shepherd lad who had "flitted" to the Liddel side, on seeing this patch, was astonished, and called to his father : "Father come here and see what strong rhubarb !" I noticed some "runch" (*Sinapis arvensis*) as a turnip weed here. Frank pointed out, nearly in a line with the bridge a little "up the green brae" on Thorlieshope ground, the site of Kid's Wa's, which are now down, the original holding of the founder of the family of Elliott of Stobs. The story of "Helen Kid's Curse" connected with this habitation, may be found in a note to Jeffrey's Hist. of Roxburghshire, iv., pp. 234-237. At present this was the "clipping" season here. The neighbouring shepherds are still annually invited, and are supplied with food for the day, wholesome Scotch porridge, evening and morning, and other substantial fare, familiar to those acquainted with pastoral life. The sheep are of the Cheviot breed. Many washing pools are met with at this period among the hill burns, and the reign of general cleanliness may be discerned in the improved whiteness of the fleeces.

An old squared stone for a cheese-press, and an old quern and creeing trough in the rockery, were the only antiques preserved.

Outside at dawn the Larks were still in full song ; the universal Sparrow was chirping ; the Cocks crowing ; the Blackbird and the Pied Wagtails were racing on the lawn, which is bounded by the Dawston Burn, and an outer line of willows and planted trees. The Willow Wren nestles in the plantation. Farther afield the Curlews were calling, and the Wheat-ears, a migratory band, occupied the cope stones of the stone-walls, which here are of sandstone. Midges are a great annoyance both in the morning and evening ; and in the summer *Olegs* abound.

For the day, Mrs Johnston had courteously placed her pony carriage at our service, and with her nephew as driver, and the Rev. Alexander Wilson as director, the line of country between Saughtree and Kielder Castle was prospected.

During the early part of the journey, Thorlieshope lay on one side of the Liddel, whose banks here crowned with a plantation, show considerable steep marly and rocky cliffs, where the Kestrel and an Owl (species not stated) nidificate. About a mile up, the ruins of Hudshouse Tower, overgrown with nettles, lie between the road and the river.

At a point about $1\frac{1}{4}$ miles from Saughtree, near where Caldron Burn joins the Liddel, are the two British Camps, visited by the Club on the subsequent day. In the old Statistical Account, vol. xvi., p. 84, these two *roundabouts* are noticed, and like others in the parish, are "commonly called *Picts Works*." Hereabouts the first traces of the Catrail can be observed. The Railway cuts right through it here. The carriage having been sent on to Muirdykes, after passing through the railway arch, the Catrail or "Piks' Dike," as it is here called, was visible, consisting of a middle earthen rampart flanked by two ditches, the ditches having a well formed elevated outer edge. It is much cut up here by deep old roadways hollowed out with water-runs. A burn crosses it here. With the Catrail on our right, following a sheep-track we went straight across the grassy moors, which lie on a comparatively level platform sloping up to the encircling back hills, to Wormsclough, a distance from the turnpike of about $1\frac{1}{2}$ miles.

It was desirable to mark the constituents of the Liddesdale grassy moors and bogs, but we had to push on too rapidly for a thorough analysis. Sometimes the pastures are much roughened with "Bulls' faces," (*Aira cespitosa*). Sheep's fescue (*Festuca ovina*), Rough fescue (*F. duriuscula*), Spring Grass (*Anthoxanthum*), Soft Grass (*Holcus mollis*), and (*Poa annua*), *Avena pratensis*, and *Briza media* were more or less prevalent; with the usual accompaniments of boggy soils, Rushes, Sprits, and Scirpi. The peaty soil was occupied by *Molinia cærulea* (Purple Melic), called here, "Fly Bent." It makes good hay, say the shepherds, but it requires to be cut and won when at the freshest. At Milkhope it was called "Fleeing Bent;" and there, as a pasture grass, was reckoned good for a while, but it dies too soon. There is much of it "in Reedwater head," and here again it comes in behind Peel Fell, the last of the Cheviots. Liddesdale and Kidland coincide in naming *Luzula pilosa*, Heart or Hart-crops. This is one of the firstlings of the year, and if it springs early, it announces a year of grass. If a Cheviot ewe in April can find to eat in her pasture three "heart-crops," she will be able to bring up her lamb, not exactly on it, but on the grasses that rise simultaneously with it in forwardness; and if there are no "heart-crops," the season is unpromising, and the newly yeaned lamb is unlikely to live, as the mother will have no milk. *Luzula congesta* did not appear to be tasted by sheep. There were plots of *Eriophorum* or "Moss-crops;" Deer's Hair (*Eleocharis cæspitosa*) was plentiful; but *Nardus stricta* (Black Bent), requiring harder and drier ground, was not so common. The not very moist pastures were regularly

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foot-drained, so as to appear as if laid off in ridges by the plough. The shepherd thought the drainage had been overdone.

The other plants intermixed were *Ajuga reptans*, *Viola palustris*, *Stellaria graminea*, *Polygala vulgaris*, *Euphrasia officinalis*, *Potentilla Tormentilla*, *Lychnis Flos-cuculi*, *Linum catharticum*, *Pedicularis sylvatica*, *Orchis maculata*, *Myosotis repens* (in drains). Nearer Bagraw ford and Muirdykes, in a more clayey soil, grew *Trifolium medium*, *Lotus corniculatus*, *Viola lutea*, blue var. (also found on Dawston Rig), *Alchemilla vulgaris*, *Galium cruciatum* and *saxatile*, *Hieracium pilosella*, *Achillea Ptarmica*, *Rhinanthus Crista-Galli*, *Pedicularis palustris*, &c. The Flora on the whole was poor and common-place, but characteristic. The Wood Anemone and Bitter Vetch, I may here mention, grow on Dawston Rig.

After refreshment at Wormsleugh, where the intelligent shepherd, William Glendinning, met us by appointment, we again sallied forth. Peat was the fuel here; the stone cheese-press stone still hung in its wooden frame, and continued in use; good rhubarb grew in the garden; Herb Gerard was a weed of old standing. Crossing the Wormsleugh Burn and ascending the slope on to the Whele Rig, we soon reached the Whele Kirk, passing the low tumuli on the height of the ridge. This ridge is about two miles long, by half a mile broad, culminating at Whele Rig Head (1465 feet), and having the Peel Burn on the east, and Wormsleugh Burn on the west. The Kirk, as indicated by its outline, is very small, and the churchyard has been of limited extent. Mr Smail has already given an account of it, see Club's Hist. Vol. ix., pp. 116-7. Mr E. J. Wilson gives me some notes about it: "Close to the line of the Wheel Causeway is the site of Whele Kirk. [It is quite plain that the name originates from the Causeway; even Peel Fell is called Wheel Fell in Armstrong's Map], the only remains of which are the foundations and the walls of the building and graveyard adjoining, entirely overgrown with turf. [Nettles have now usurped the Kirk floor]. Most of the stones used in building an adjacent sheep-fold, show chamfers and other architectural details." Quoting a note of Mr James Telfer, inserted in the introductory chapter to Robert White's Otterburn, Mr Wilson continues: "Within the memory of those still living, one of the workmen at the farm of Peel had in his possession the piscina or holy water basin of Whele Kirk, which his wife appropriated as a clew basket—that is a dish in which she kept her worsted. Telfer says, 'it was like a stone basin which projected from the wall supported by a rudely sculptured arm.'" It was finally "consigned to the more undignified purpose of a trough for pigs feeding out of, and eventually was broken up and utilised to sand the floor with, when he enquired for it in 1851."

Some other remains, including an old quern, were carried off surreptitiously. There is a section of a head of a window of the Kirk engraved in Mr Bruce Armstrong's Liddesdale, at p. 90.

We seated ourselves by the Monk's Well and had a refreshing drink. There is no want of good water in the vicinity. Resting here, we looked across to the vast Peel Fell (1964 feet) fronting us. The lower part is green, but the apical portion is capped with peat. At its base is a thriving

fir plantation, and at Peel Farm there are several well-grown Ash trees. There are also several other planted trees on Wheelrig-end, and a solitary pine, from a dropped seedling perhaps, far up a cleugh on Peel Burn. Most of the hill-tops rise to the region of peat-flows; the middle and lower portion being grassy; and symptomatic of dryness and a clayey soil, there are beds of brackens, as at Wheelrig Head, and lower down at the Rigg end. Near the source of the Peel-burn, the pasture is liable to cause *pining* in the sheep, if kept too long on it. Along the middle part of the hills, the sheep-stalls for sheltering the flocks during storms are situated. Violent thunder-storms in summer break out among these hills, accompanied with tremendous noise, and heavy downpours of rain and hail; while a solemn darkness adhering to the black hill summits, doubles the grandeur of these mighty displays of elemental power. The rapid rise of the mountain torrents after these outbursts, is also a wonderful scene. The whole upper face of Peel Fell is strewn with vast blocks of grey sandstone, or scaured with black fissures, effects either of the fury of these sudden spates, or from slips occasioned by the sudden melting of the winter snows. The most remarkable of these boulders, if it is a boulder, is the vast Kiel or Kielder Stone, so well known from Leyden's Ballad "The Coult of Kielder," which lies in solitary massiveness at the east end of Peel Fell. According to Mr Wilson's memoranda, it is 46 feet in length. "That portion of the rock above the surface of the ground, contains some 30,000 feet, and is calculated to weigh 1500 tons." The Peel Farm, at the base, he says, "is evidently the place referred to by Thomas Thomson of Edinburgh in his note to the Ragman Rolls, 1834, where he describes it as consisting of the 'remains of a peel or small castellated house.' Not a vestige of the tower now exists."

Remains of Oak and Birch timber have been dug out of drains; but no Pine wood, such as a tributary of the Kielder, and the "Fir-tree Moss" at Yarrow, near Falstone, have yielded.

Conversing about the hill-berries, Mr Glendinning mentioned the following as known in this district. "Knots" or Knoops (the Clondberry) are abundant on Peel Fell; parts of the hill-top are even red with them; also on Hartshorn Pike and at Deadwater head. The berries are gathered and jam made of them. The berry of *Vaccinium Vitis-Idæa* is found on Peel Fell, and lower down; Cranberries are obtained on Boghall, below Dinlabyre, and in Hartsgarth Flow, adjoining one of the branches of Hermitage Water.

He gave the term of "Jack startles a stovy," or "stoopy" to the undulatory exhalations in hot weather, when the hill-tops appear to be running off, like a band of "startled" cattle. When "Jack startles his stovie," it is the signal for the children on the hills to go bare-footed. In Kidland, this appearance is called "Jock stertle a stocka." In Yarrow, (New Stat. Account, p. 33) it is termed "Startling Jack." In Jamieson's "Scottish Dictionary," "Startle-o-stovie," "Jock-an'-startle o' stovie" is given from Ettrick Forest. *Stove*, and *stoue* for a vapour is used by Gawin Douglas; *stewa*, vapour, (Barbour); *styfa*, vapour, (Islandic). This points to a community of race among the Border shepherds.

To turn again to the scene before us, a flock of sheep that morning had traversed the Wheel Causeway, and revealed its upward course over the hill ridge, by ruffling the bent. It is still a Drove Road. It, and the track by the Note-o'-the-Gate, were the only passes into Upper Liddesdale from the northward, and by these, the Highlanders in two divisions descended. Besides these there are disused smuggling roads. Several of the Highlanders having noted the capabilities of these wild hills for conducting illicit distilleries, returned here after their dispersion, and stories of their cunning shifts to elude the gaugers, are still fresh in the memories of the old shepherds. After looking at some of the tumuli near the old Kirk, and having pointed out examples of the Kiln-pots, already fully described by Mr Smail (*Club's Hist.* ix., pp. 121-2,) which resemble the circular hollows of deserted coal-pits, we tried to ascertain where the Causeway and the Catrail crossed, but they were so much effaced here, that no definite result was obtainable. It would require careful excavations to reveal which was the older of the two. The relation of this and other causeways or roads, to other native divisional dikes, requires to be surveyed and mapped before any satisfactory theory of their age can be arrived at.

Passing along the line of the Catrail, and leaving it at Rigfoot, we reached the turnpike again at Muirdykes, a point about two miles nearer Bellingham than the site of the British camps. Thence we drove through the flat gap between the hills, among green pastures, into England, seeing on our left the Deadwater Fells, with their bracken cinctures round the skirts, and rather tame-featured crags, and the clustered congeries of hill-tops behind Kielder, one of which, Pearl Fell, is "fantastically crowned with 4 rude pillars of stone set up by shepherds, and called *Pikes*." On the right was the terminus of the Larriston Fells, on Thorlieshope ground. The Thorlieshope Lime-kilns and Fairloans freestone quarries lie on the slopes. It was at this Fairloans that Telfer picked up the story of Parey Reed, and not at Fairloans near Kalewater head, as stated by Robert White, and as I have quoted in the present volume, at p. 407.

The Deadwater sulphur spring was once in great vogue, for the cure of cutaneous disorders, and was patronised yearly by visitors from Hawick, Jedburgh, etc. Young people also in the neighbourhood were obliged to submit to its regular application annually, by their parents, and the time spent there was considered as a holiday. The water was not only drunk on the spot, but was conveyed to a distance. One of its owners erected marble baths and other accommodations for the use of persons seeking the benefit of its waters. His successor seeing that it encouraged trespassers, poachers, &c., to come about and disturb both game and stock, had the baths and conveniences removed. During the summer months, occasional visitors still find their way to try its effects on their frames.

The boundary between Scotland and England is crossed before reaching Deadwater Cottage. Bell's Burn comes down from a cleugh on the right; a few trees are visible near a rocky fissure (Bell's Linn) before it finally leaves the hills to unite with the Deadwater. The site of Bell's Kirk was near the junction of the two burns, opposite to the Rinds hill. This Kirk

was formerly under the ecclesiastical jurisdiction of Jedburgh Abbey. Readers of the "Minstrelsy of the Scottish Border" will see that it is a perversion to transplant the Cowt of Kielder's grave from Hermitage to the neighbourhood of Bell's Kirk. The Deadwater and Bell's Burn form the North Tyne. The head of North Tyne, in Armstrong's Map, 1769, is placed among the hills, on a fork of the Deadwater. Modern surveyors, however, place the source "a little further north than the Deadwater, which they thus make its first tributary," pointing to its rise, "at a spot within the enclosure of the North British Railway, near some old cutting stone sheds connected with a quarry seen on the Fell side." (Palmer's "Tyne and its Tributaries," p. 4). From the breadth of its channel, and the mass of debris that it has brought down from the hills, it appeared to me that Kielder Burn had once been the main stream, and even still, during a flood, it must be the force of that wild stream that impels the sluggish Deadwater to fulfil its functions. The course is indicated by the glaucous green foliage and the numerous black heads of *Carex riparia* on its margin, along a grassy meadow. Then alders and birches gather round the infant river, in clumps or single trees. Then a conspicuous new house for the Duke of Northumberland's agent, rises above the closer clustering willows, and birches and alders, and mountain ashes and bird-cherries, on the sloping left banks, and surrounded by moist mountain meadows. Thickets of fir cover the approach to Kielder Castle, and envelop the native sylvan investment of the stream. *Carduus heterophyllus*, and *Geranium sylvaticum*, and *Equisetum sylvaticum* are frequent by the road-side. The North Tyne is crossed near a thicket of trees, and being at this season at its extreme diminution, contained little water. Access had been obtained to the grounds. The Castle occupies a green grassy knoll, and is now well environed with trees of limited size; for it is a modern shooting-seat of moderate dimensions, built in a castellated style. It must have a fine appearance from the upland moors which overhang it on the east. Woods not only screen the castle, but plantations are massed at the base of the dark heathery hills, and diversify the prospect. A settled quiet prevails. Encircling the grassy space in front of the castle, is the Kielder with its broad channel full of huge boulders. These as well as those in the Liddel were of a dirty white, from the clayey character of the soil on their banks. There was much *Carduus heterophyllus*, and *Geranium sylvaticum* in the hay-crops. The Great White Ox-eye grew in the pastures. The birds visible were Chaffinches and Starlings, and the Grey Flycatchers perched on horizontal tree branches, were busy at their avocation of capturing passing insects. There was nothing here to be seen in the form of antiquities; but Mackenzie (Northd., II., p. 256) states that "some yards to the north of the castle, 4 rings and 2 round pieces of bronze, clumsily soldered together with a whitish metal, were discovered by the earth being washed from about them by the water of an open drain." A stemmed and barbed flint arrow-head, resembling Dr. Evans' figure, 303, was found in Kielder Burn. (Ancient Stone Implements, p. 346. Arch. Journal, XVII., p. 60.)

Our object was now attained which was to ascertain whether the Club could reach the head of North Tyne with Bellingham and Falstone to fall back on. It would require two days, but in other respects, is within reach. Our time-keeper now intervenes and warns us that we have remained long enough. "We had started from Saughtree about 10 o'clock, it was now 3. After a short stay at Kielder, we were driven slowly back and reached Saughtree about 5.30." Such is the short and long of it in our friend's record. Before crossing into Scotland, I will quote the Bounder of 1604, now preparing for publication by Mr Roundell P. Sanderson, so far as applicable here.

"It beginneth at Laimesike foorde, where Northumberland and Cumberland meete upon Scotland, and extendeth eastward to ye Meere Yate upon the Fleete, and so to the head of Blake-up, the boundering lands on ye English side beinge sometyme of ye possessions of the late Lo. Burrowes, and are now in ye tenure of Sir Anthony Paumer, Kt. From the head of Blake-up, the bounds extendeth to Bells Rig and so to Blackley Pike; and from thence to ye west end of ye Red Mosse so as ye Meere dike goeth up the Parle Rigg to the Parle Fell, and so along ye same to Robs Crosse, and from thence to the east nooke of the Carter, where Tindall and Ridsdale meete; all the bordering lands on the English side are of the possession of the Earle of Northumberland."

In the evening, at Saughtree, an attempt was made with the aid of Master A. S. Murray-Stavert's collection of eggs, and what observations were made on the hills, to enumerate the Bird Fauna. Both the Kestrel and the Sparrow Hawk are found near Saughtree; also one species of Owl said to build among rocks on the Liddel; Grey Flycatcher at Kielder Castle; Water Ouzel on the streams; Missel Thrush, Song Thrush, and Blackbird; Ring Ouzel or Rock Starling, said to be frequent; Hedge Sparrow or "Hedgie"; Redbreast; Redstart nest in a wall at Riccarton; Sedge Warbler, and Willow Wren; Pied Wagtail; Moor Pipit, not particularly common; Wheat-ear, common in summer; Whin-chat, and Stone-chat, on the Caldron Burn, and on the Deadwater; Skylark, plentiful; Yellow-hammer, Chaffinch, Sparrow, Bullfinch, Greenfinch, and Common Linnet; Starling, Rook, and Jackdaw; Cuckoo, not very frequent; Chimney, House, and Bank Swallows; Swift; Goatsucker; Pheasant, Partridge, Black and Red Grouse, on Thorlieshope; (perhaps not so "thick as doos in a docket," as Dinmont promised to his companion, but sufficient to allow him to "see a Blackcock, and shoot a Blackcock, and eat a Blackcock too"); Golden Plover, Saughtree Grains; Dotterel pays a spring visit to the Fells; Lapwing, well known; Curlew at home here, a white variety had frequented the Saughtree bogs for two or three years; Sandpiper; Woodcock; Snipe at Wormsleugh and Deadwater; the Dunlin (*Tringa variabilis*) breeds on the peat mosses of Wormsleugh, Saughtree Grains and Fell (eggs preserved); Corn-Crake, Common Gallinule, and Coot; Black-headed Gull, daily on the Liddel. The Rev. James Arkle, in the old Stat. Acct., 1795, adds: Wild Ducks, Wood Pigeons, Buzzards, Ravens, Herons, Magpies, and Goldfinches. He says the Bittern was "formerly numerous, but is now seldom to be seen." Among birds of passage he classes the Kingfisher, the Yellow Seed Bird (*Motacilla lugubris*), probably the Fieldfare, and different species of Gulls and Shieldrakes. "Teals and Wigeons are seen in spring when the waters are swelled with rain.

Eagles or Ears are frequently seen, but have no place of residence here." He also supplies information about the quadrupeds, which he says are "Foxes, Hares, Wild Cats, Pole Cats, Weazels, the White Weazel, often seen in winter, Hedgehogs, and Norway Rats. Tradition affirms that the earth of Liddesdale has a peculiar quality of banishing the Common Rat from Teviotdale. It is certain, that only a few years ago, carriers on their return to the country loaded their horses with it, and carried it away for that purpose. But it is affirmed, with more probability, that it is only since the Norway Rat was introduced, that the Common Rat has been extirpated." Old. Stat. Acct., xvi., p. 76. He says nothing of the Badger. Adders, he adds, and as I learned from the shepherds, are not numerous; the soil is too damp.

In recent seasons the hill-pastures have escaped the ravages of the Field Mice, and the Caterpillars of the Grass Moth. There have been years when the grasses were cut up with the larvæ of a species of *Tipula*.

In the forenoon of June 28th, a drive was taken across the dividing hill ridge, between the slopes of the basin of Upper Liddesdale, and the gathering ground of the tributaries of the Rule and Jed waters. It is of the road across the pass here that Sir Walter Scott speaks in a note to "Guy-Mannerling," "The roads of Liddesdale, in Dandie Dinmont's days, could not be said to exist, and the district was only accessible through a succession of tremendous morasses. About thirty years ago, the author himself was the first who ever drove a little open carriage into these wilds; the excellent roads by which they are now traversed, being then in some progress. The people stared with no small wonder at a sight which many of them had never witnessed in their lives before." It is a steep winding way along hill-sides, and across depressions formed by intersecting cleughs, with a limited view on either hand, till the encompassing hill ridges are surmounted. Greywacke slate is the predominant variety of rock, and it weathers into a yellow or whitish clay. The hills themselves are capped with peat, and the winter torrents cut black gashes in the soft enveloping mass, till they reach the moistened decaying rock beneath, and break it up into conspicuous deep yellow scaurs. They likewise deepen and scour out the transverse or slanting foot drains, so that the dark hill-faces are often crossed with numerous lengthened yellow coloured lines of singular aspect, which sometimes terminate in a vast mountain slip. The road is now that to Jedburgh, and passes up the side of Dawston Burn to Abbey, where the Club had been on the previous day. We have therefore now a continuance of that day's journey. At Abbey we look up the Cliff-hope burn which rises in the Mid Hill (1423 feet) and Lamblair Hill, 1635 feet, and lies on our left hand as we ascend. Cooper Cleugh, in which there runs a tributary of the Dawston, is on the same side; and on the other we look down into Singdean or Caldron Burn. Thereafter Wane Cleugh communicates with Singdean, near which is a thriving plantation, chiefly of fir trees. At Singdean we are shown a rather remarkably home-made-looking spade for cutting foot-drains; and the shepherd has an old "creeing-trough," for husking bear or barley, lying at the house-end. Singdean Burn rises in Fanna Bog. In the

weeping clayey soil by the road-side, and in the ditches, there is much *Sedum villosum*, along with *Myosotis repens*. Lady smocks, and *Lychnis Flos-cuculi* ornament the bogs. At some of the old crossings of the ways to peat-diggings, or the remains of old drove or smuggling roads, the ground is remarkably cut up with deep hollows and intervening ridges, so as to resemble earthen fortifications. The "Note-o'-the-Gate" Toll House was becoming dilapidated. The shepherd alleged that the name arose from Prince Charlie enumerating or *taking note* of his men here; but Sir Walter Scott, who knew nothing of this, furnishes another spelling, when he speaks of "the auld drove road that gaes awa by the *Knot o' the Gate* ower to Keeldar ward." Near the top of the ridge we obtain a commanding view of the country between Hawick and Jedburgh, and the encircling ranges of hills. The hills are lumpy rather than graceful. Those on the left are Dog Knowe, 1480 feet, Wigg Knowe, Fauna Rig, 1477 feet, the peaty rims of which are rather gashed and weather wasted. On our right was Rushy Rigg, 1370 feet, still true to its name, and having a ragged fir planting on it; Needslaw, 1457 feet, bearing a distinctive badge on one end of radiating yellow cleughs, as if impressed with the Queen's "broad-arrow," the winter spates having not only penetrated beneath the peaty shell to the central boss of slate, but carved it to the quick. Beyond this is the Carlin Tooth, 1801 feet; the Scrathy holes, a fox-harbour, 1685 feet; and as the heights sweep round, Carter Fell, browned with heather, 1815 feet, can be singled out, although not so distinctive in appearance, as one would expect. The distant atmosphere was too dense to determine others. Far away the group of heights round Coquet head was discernible, and still more remote, Great Cheviot itself. Of more immediate interest was the minute view afforded of the parish of Southdean, as yet unknown to the Club. Directly beneath us rises the Hyndlee or Catlee Burn, a branch of the Rule; and Raven Burn, the head water of the Jed. The Brockilaw Hill, 1203 feet, whereof Telfer tells a Fairy story, is on Hyndlee, Dandie Dinmont's farm. We pause here, preparatory to returning, between Roughhope Rig and the Wigg, and look across to the white scalp of Wolfelee Hill, 1286 feet, and to the woods, at its base, of Wolfhopelee and Wauchope, and can trace the Wauchope Burn, by its fringe of birches, towards the hilly region behind. Wolfelee is out of sight; but Weens stands out; and Ruberslaw with its sylvan adjuncts; and beyond it the twin Minto Hill-tops. An envious haze blurred many of the features of this glorious prospect. The conclusion that I arrived at was that it is possible to overtake Hyndlee, Wolfelee, Wauchope or Harewood in any year from Jedburgh or Hawick; and that we ought to unite our hill surveys by including Carter Fell within the Club's area.

MINDRUM, PASTON, HARELAW, SHOTTON, KIRK YETHOLM.

THE Third Meeting took place on July 31st, at Mindrum Station for the green hills adjoining the pleasant dale of Paston, and the south-eastern side of the rich basin of the Beaumont stretching to Kirk Yetholm. Most of the members having breakfasted at home, the preparations for their reception under a tent placed within the Station grounds, were out of all proportion to the numbers present. After the President's arrival from a drive of 20 miles, the party started for Paston Hill, which is not the first, but the second of the range; taking in their way Paston Hall and its fine policies, to which they were welcomed by Mr P. G. Selby, Shotton, in the absence of his brother, Mr B. P. Selby, in London. The Beaumont, flowing here very gently, but not to be trusted in a flood, is crossed by a wooden bridge. The shrubberies are very ornamental; *Spiræa salicifolia* in blossom being particularly thriving and showy; and lines or plots of flowers being disposed next the walks, the effect was highly pleasing. The garden was visited, and contains besides its fruit and vegetable crops, a fair collection of herbaceous standards and fancy blooms, among others very fine Pansies. The mansion, built of freestone, is new and handsome. It contains within it, the old Peel Tower (erected by Gerard Selby before 1542,*) whereof the vault has been converted into a cellar. The place has long been in the possession of the Selby family; the present owner, however, being of a different branch (Selby of Beal) from the earlier holders of the name; but what commends itself more to us as naturalists, derived from the same lineage as P. J. Selby, the ornithologist, one of the institutors of the Club; Selby of Twizell being the first, and Collingwood Selby, now of Paston, being the secondary offshoots of that race. The history of the estate and its owners has not yet been fully investigated, and there is no space for it at present, even had this been accomplished. Before leaving the place, I shall make extracts from a letter received from Mr Selby, intended to draw the attention of members to several objects in the neighbourhood, in which he thought they might feel an interest. In explanation I may state that in company with the Rev. Matthew Culley of Coupland, I had visited Mr Selby on the 22nd of March preceding, and he had then most obligingly shown us the house;

* Hodgson's Northd., Part III., Vol. II., p. 183.

maps, among others, the Ordnance Map of the Parish of Kirknewton; and several estate documents.

New University Club, St. James's Street, S.W.

July 25th, 1889.

"The most interesting attraction to archaeologists at Pawston is the Camp on the top of Pawston (*not* Harelaw) Hill, which is partly inside and partly outside the *round* plantation on the top of the hill: should any of the party have any experiences that way, I should much like their opinion on the Camp. It is circular with parallel lines of old walls running across it.

For gentlemen who have a turn for Geology, there are numerous traces of the 'Great Ice Age' in the district, notably a conical mound just opposite Langham Bridge.*

Anyone going from Pawston up the Hill, by the Slant Roads, and looking down towards Thornington can see this mound, as well as numerous markings both on Pawston Hill and Kilham. By following this route, Pawston Hill is reached, after say 40 minutes easy walking.

The formation of the ground at the head of the lake [Paston Lake] outside the plantation [there] is a little peculiar (Ice action probably) Although the lake is artificial (this is obvious when you walk along the road through the plantation, between the two bits of young wood); the original marshy bit is, I think, of Ice origin, and of a similar origin to the pools near Langham Bridge, or to the pond at Pallinsburn. There are numerous boulders at the bottom of the strip below the road, when you are down from the lake, but they are not easy to be seen in the summer owing to the vegetation. In the adjoining field, 'Pared Lands,' on Pawston, when we were draining in the spring, the man employed (Kennedy) came across several of these boulders buried in the clay. I saw them myself *in situ*. There is also a good stiff bit of clay in one corner of the Shepherd's Field just above Pawston. The steward knows all these clay patches. I should like to know if any of them are from Boulder Ice.

Do not forget to look at the keeper's (Scott) house at Harelaw, and study the lintel inside the porch, showing the house was built in the reign of Queen Elizabeth. I would recommend some, at all events, of the party going to the top of Harelaw Hill, just above the lake, and opposite Pawston Hill, as a magnificent view can be obtained thence when clear, including a view out to sea; and a still better view can be obtained from Cowdsmouth, above Halterburn, but I doubt your party having time for that.

From Shotton traces of Ice action are distinctly visible on Venchen Hill, next Beaumont Hill. The six inch Ordnance Map states that there is a Camp on Beaumont Hill, as well as numerous others, which I showed you when at Pawston; but for a thorough study the Maps of the other Parishes are required.

*For Langham Bridge, as associated with the early years of Robert Story the poet, see his Life affixed to his "Lyric and other Minor Poems," London, 1861, p. xviii.

It might be also worth noticing the traces of an old water-course through the 'Mill Haugh' at Pawston, and below a steep bank opposite the Police Station, and then past the cattle shed at the corner of the old grass field; the whole of the fence between the old grass and arable land stands in a hollow, and on crossing the fence on to Downham Haugh, the old water-course is distinctly marked, though now concealed by the Railway."

I remain, yours truly,

(Signed) B. P. SELBY.

There are some fine umbrageous trees in the park, several of them arranged in rows, as if they had sheltered and sub-divided old village allotments. A footpath from the main road, enabled the company to reach the steeper part of Paston Hill, which is separated from its neighbour by a grassy hollow. It affords an example of the constituents of a dry, rather than a rich hill pasture; a mixture of Bent (*Nardus stricta*), Vernal Grass, *Aira flexuosa*, *Festuca ovina*, etc.; Wild Thyme, Tormentil, Milkwort, etc. It is flanked on the S.E. by a continuation of the hollow already alluded to, beyond which lie the Heathpool heights, which again are overtopped by the Newton Torrs. The hill at top broadens out to a limited grassy plateau, which has been cultivated, as appears by flat ridges running N. and S. From this top-flat (755 feet), there is a map-like view of the plain stretching from Mindrum, as far as the Presson range of low hills on the north, and that above Downham eastwards. To the south and west were many tall hills, intercepting, excepting by glimpses at intervals, a view of Cheviot through the gaps; the Northern Cairn arising out of a darkened mass (for the horizon was hazy) being a prominent object. Cowdsmouth is one of the most bulky. Harelaw (915 feet) lies on the south beyond Paston Lake, and is even to the eye a bigger hill than Paston Hill; the lower portions of its northern slope are under culture. Near the bottom on its S.W. side, in Dr. Bruce's Map to the 4th edition of the "Roman Wall," a semicircular fortification is indicated; but there is no camp on the summit of this hill, as Mackenzie, Northd. I., p. 375, alleges. A slack following the depression of the Paston lake runs in the direction of Long-know and Thompson's Walls, but this collection of green hills has never yet been subjected to minute topographical or historical researches. They have a history, however, and detached sections of them were in early times the subjects of grants to Melrose and Kelso Monasteries. Translations of the charters relating to them have been made, but they require to be applied to their

present condition of cultivation ; and the nomenclature now in vogue of localities needs to be known. Opposite to us, on the north, lay Mindrum Mill and Mindrum Farm ; and looking out from a projecting screen of trees, Beaumont Hill, backed by the Yetholm Hills. The scene opened out as we proceeded till there came in view the clustering (mostly) slated village of Yetholm and its adjoining common, and opposite to it the high Venchen grounds, rising to Cherrytrees, and the line trending backwards towards Hoselaw.

The bright sultry day proved rather too melting for those unused to the hot Border hills, on which, from a cloudless sky, the sun poured down its unmitigated rays. A halt was called at the Camp side near the plantation, and then after a few directions, the majority proceeded towards the lake at the base, and then took the line for Harelaw, and ultimately held on to Yetholm, leaving Mr G. H. Thompson and myself to recover our breath, and examine the Camp. The Camp has a double ring and is not entirely enclosed within the wall of the plantation ; which with internal combination of parallel walls, has been erected at the expense of the camp rings, supplemented by stones gathered from the cultured area. Beside these internal walls, there are foundations of rough hut circles. One account of the Camp says that the outer ring is 400 yards in circumference. Mr Thompson's estimate, obtained by pacing, is much less. Of the camp he says "The diameter (it is nearly circular) from N. to S. is 86 yards. Inside there are 7 ridges of stones running E.S.E. to W.N.W., three of them crossing the whole distance. There are also indications of hut-circles, but whether ancient or belonging to the times of Border warfare is uncertain." They are certainly newer and more loosely constructed than the Camp rings. I noticed that several of them were connected together at the eastern end, where they form arches without a thoroughfare, like "bughts." They were perhaps intended to shelter, or sort sheep, or for ewe-milking. Sheep naturally resort to the hill tops in the evening, and advantage may have been taken of this habit to assemble the flock here. The Border Day Watch of 1552, was here : "Paston to watch Paston Hill with one man on the day." The Night Watch was placed in a more advanced position nearer to Scotland, on the other side of the valley. The original part of the camp does not differ from the ordinary type of hill fortresses prevalent in the district.

Mr Thompson states, although he has not given the authority, that at the western base of Paston Hill, in removing a cairn of stones in 1838, a small earthen urn was found containing ashes and small pieces of burnt bones; and also that the "Auld Yaud," a figure of a horse is to be seen on some hills to the west. A discovery of considerable historical value, had it been followed out, was made on the farm of Mindrum, about 1834. The original notice of it is in the Rev. John Baird's Statist. Acct. of the Parish of Yetholm (Roxburghshire, p. 164); but it is quite disappointing in its meagreness. "On the farm of Mindrum, in Northumberland, on the very borders of the parish, was lately ploughed up a vase or bottle of brass containing 500 Roman silver coins." When the Club visited Coldstream, July 25, 1877, Mr William Cunningham allowed me to examine two silver Roman Coins, which had been given to him by Mr Rand, Beaumont Hill, and which he was told had been found, many years previously, on that farm. (Club's Hist., Vol. VIII., p. 220). One was of Hadrian, on which he was styled *Augustus, Pater Patriæ*. This emperor assumed the P.P. in A.D. 126 or 128, but it had been conferred on him by the senate in 117. He visited Britain in A.D. 121. The other piece was one dedicated to 'Faustina,' the younger, the most beautiful woman of her age, wife of the emperor Marcus Aurelius Antoninus, and inscribed "*Diva Faustina Augusta*." She died A.D. 175. It is possible as the farms adjoin that these were portions of the hoard of 1834, which may have contained coins later than these, and thus we cannot arrive at a conclusion when it was deposited here.

The steepest descent of the hill is in the direction of the lake. The hill face is rather bare, as was indicated by the paucity of bracken clumps. It is much roaded with transverse sheep tracks. A few furze bushes and dwarf hawthorns are sprinkled across the upper part of the S.W. aspect. When we descended most of the company were already leaving the lake to cross Harelaw Hill. They had roused several Wild Ducks. The lake lay in the hollow at the base of the two hills, calm, clear, and limpid; sheltered by young plantations, among which the pale-leaved pendant branching willows imparted a still more aquatic character to the spot, especially to the artificial islands. The margin had an appropriate lining of *Phalaris arundinacea* and *Carex ampullacea*; while arising from the water, *Alisma Plantago* intermingled its pale blooms with the gay pink spikes that enlivened the floating

green beds of *Polygonum amphibium*. *Rumex palustris* was not looked for. Outside, in the plantation, were thickets of well-grown wild Raspberries, with delicious berries, a sprinkling of Foxgloves, and some stately wood-grasses. Except the Ducks, and a few lingering Wheat-ears on the wall-tops, there were no birds visible anywhere. Afterwards with Mr Selby and Major Browne, and the Rev. R. H. Williamson, we reached our destination which was the Border line, by the public Yetholm Road. The fields on both sides were well cultivated, showing good Barley, Wheat occasionally, Oat and Turnip crops; the face of the country being embellished also with thriving plantations and shapely solitary trees; and beyond the level gradually sloping upwards to pasture hills with green tops, without crags. The air was balmy, without wind, and there were no tormenting flies. The way-side plants sometimes indicate the nature of the soil, and the character of its Flora. There were here a few Brambles and Honeysuckles in the hedges; and Broom was commencing to spring up on the banks. The way-side flowers were "Blue Bells," and Zig-zag Clover; but not much of either. Nearer Shotton, the brilliant Blue Geranium (*G. pratense*) became very prevalent both on the road-sides and in the old grass pastures; and the Common Hemlock and Mallows showed unmistakably the former or present proximity of human habitations, as they had already done near Mindrum Station and Paston village. We had now reached the extensive haugh land between Shotton and the Beaumont. Old trees, clustered or single, marked obsolete steadings or houses. In a drougthy year this haugh land is liable to burning, being full of irregular gravel patches, and old burn and river channels, concealed by a thin covering of soil. We went on to Yetholm Mains, which is situated on a flat on the margin of Halterburn or Elterburn, where the bridge crosses. The name Halterburn may or may not be derived from St. Etheldreda's Chapel, which stood on the stream higher up. The burn comes down in a deep gash in the back of a high green hill, which has in it two slacks, the western one of which carries up Halterburn and the boundary wall between England and Scotland, about the proper position of which there were numerous contentions three centuries ago, but which is now very prominent in its renewed present condition, both on this side and beyond the Beaumont between Venchen and Shotton, etc., lands. At the bottom near the stream, a thorn hedge now marks the

division. Along the two sides of a green meadow, distinguished by a profusion of blooming Ragweed, as being a cow pasture, the waters of the stream are distributed in two cauld, the one to Shotton Mill, the other to Yetholm Mains Thrashing-mill; the intermediate main stream receiving the surplus. Let us, on the boundary of the once two rival realms, quote in its latest and briefest form, from the Survey of 1604,* the portion applicable here.

“And so from the Hanging Stone the bounder extendeth to the Criebe head to the north side of the Shill, and so to the head of the Stare-rigg; the lands on the Englishe side are in the possession of Mr Nicholas ffoster, and boundeth the forrest of Cheviote as p’cell therof. Then leavinge the bounder of the forrest it extendeth to the White Swaire, so down the Swierlls to the Helter borne, so down the same borne to the Helter Chappell, and so to the Over Stawfoord; the grounds on the Englishe side are in the possession of Sr Raph Graie Knight. From the Over Stawe forde, the bounder extendeth to Bowmoute water; the lands on the Englishe side are in the possession of the Earle of Rutland, Sr Raphe Gray, and Wm. Strouther of Newton. Ffrom Bowmont water the bounder extendeth up a Casten dike, (*i.e.* cast down or erased) to the west side of Shotten Lawe to the Carrs p’ce [belonging to the Carrs or Kerrs of Green-head]: the lands within are in the possession of Sr Wm. Selbie, Knt.”

Mr Selby kindly invited us to his house, where after partaking of refreshments, he showed us several interesting Roman Antiquities which he had brought from the south of England. Roses grow well here. The history of Shotton cannot be treated of at present. Through favour of some of the old proprietors of the neighbouring hill country, the Border Scottish Monasteries participated in some of their grants for pious purposes in Shotton. Latterly it and Harelaw were sometimes combined under one ownership; at other times they were dissevered, and there were more holders than either one or two. Until the kingdoms obtained a respite by becoming united, Shotton was liable to be almost constantly laid waste by the persistent ravages of its Scots neighbours.

Mr George Tait, Lilburn Hill, informs me that 30 years ago, when he was at Thompson’s Walls, a sword with a cruciform handle had been found at Shotton near a hedge on the west side of a field called Ryehill. It was presented to Hawick Museum in the name of one Inglis, whose name is attached to it.

On returning to Mindrum, the President reported that he had

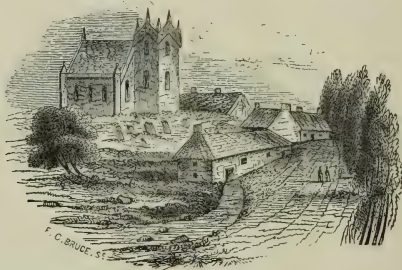
* Now being edited by Mr R. P. Sanderson of the British Museum.

copied the inscription on the door-head of the gamekeeper's house at Harelaw as follows :—

B W I L T R E B U I L T
1 5 9 3 · W. S. G. S. 1 7 0 4

Reaching Yetholm, one of our artistic members painted several of the old gipsy wives seated on the door stones outside the houses, wearing the “mutches” of the Border dames of times gone by. He reported that some of the houses are still thatched with a kind of reed, called there “Black-headed Laddies,” brought from Yetholm Loch, which was possibly *Typha latifolia*, “Reed Mace.”

The use of a cut of Yetholm Kirk has been kindly permitted by one of the Club's well-wishers.



YETHOLM KIRK.

A botanical party led by Capt. Norman, R.N., carefully searched the banks of the Beaumont downwards, but owing to the prevalent drought they found nothing of any moment, that had not previously been recorded. Mr A. M. Dunlop brought with him a brown *Uredo* or *Puccinia* of the Common Mallow.

A chapel might have been expected at Mindrum, as church services would be required for the servants or *conversi* of the Knight Templars, and the brethren of Bolton Hospital, who had lands at Paston.* Mr G. H. Thompson supplies me with a

* Another origin of a much earlier period may be assigned for the existence of a chapel at Mindrum, from its being one of the stedes or hamlets granted by King Oswy and his nobles before A.D. 670, to the church of Lindisfarne. Before that date, they had conferred on it numerous donations of land on the river Bolbenda, with the following stedes or

notice—*Mindrum*: “Foundations of an ancient chapel were dug up in 1819. Remains of a neglected Cemetery.” In company with the Rev. Matthew Culley, I visited, May 21, 1889, this outlying grave-yard which is adjacent to the public road at a short distance from Mindrum Mill. It is well protected by a stone wall. It has occupied a low flat knoll, which is much depressed at the north end. There are no remains of a chapel, but where it may have stood, is a space enclosed with a high wall of no great age, within which are some large flat sandstone slabs that may cover a vault. The name Edmiston is inscribed on an uprooted stone near. The standing stones are not numerous: they are much sunk into the soil, and most of them are inclined from the perpendicular, owing to the coffins collapsing. They are of a grey sandstone, that weathers red, and unfaithful to its charge, peels off. Most of the stones are so coated with *Lecanora parella*, that the inscriptions are illegible. Some Halls lie here; there is one stone to James Dods, tenant in Cherrytrees, 22nd May, 1805, aged 52; one to James Rea, 1719; and on the same stone, a date of 1730. One name is peculiar: “Helender Gramoud, who died 4th June, aged 58 years.” There were also a Kerr, a Piercy, a Tait, and a Matthewson; and a recent stone to one Wilson in Mindrum. There was sculpturing of hour-glasses, cross-bones, and death’s-heads. The ornamental design and workmanship of one stone was much superior to the rest. There is in the middle a series

hamlets, viz.—*Suggariple*, *Hesterhch* or *Hesterhob*, *Gistatadun*, *Waiguirtun*, *Cliftun*, *Scerbedle*, (another reading is *Merbedle*), *Colwela*, *Elterburna*, *Thornburnum*, *Scotadium*, *Gathan*, and *Minethrum*. (Hist. St. Cuthberti apud X Scriptores à Twysden, col. 673; quoted in Morton’s Mon. Hist. of Teviotdale, p. 3 note. See also Hodgson Hinde’s Northumberland, p. 127.) Some of these are still recognisable; others may have perished. Sugar or Suggariple, may be Sourhope Chill; Hesterhch, (Easter haugh or hope) may survive in Elstan haugh; Gistatadun, Venchen, (some say Gateshaw); Waiguirtun, unknown; Cliftun, still extant; Colwela, Col for cold still remains in Colroust; Scerbedle, the bottel or vill of the Sheriff or Bailiff, unknown; but according to the second reading, Merbedle is Morebattle on the Kale; Elterburn survives in Halterburn; Thornburnum, Thornington, but very doubtful; Scotadium is Shotton; Gathan is Yetholm; and Minethrum is Mindrum. In one old spelling at least Mindrum is written Mildrom, as if corrupted from *Molitura*, a grinding, *Malldr*, Islandic, *Melder*, Scots, and *ham*, a dwelling. In old Scots, *Milnare* is a miller, the Swedish *Moelnare*. Through these we get all the main consonants of the modern Mindrum, and the early *Minethrum*, for *th* is a variant of *d*.

of seven transverse graves, with a small stone at the head of each, as if the victims of some sudden calamity, or fatal distemper, had been laid in this fatal row. The grass, which is of the dusky hue of old pasture, is well kept down by sheep. Like that at Oxnam, the grave covering might originally come from the hills, which brought with it the crop of *Luzula campestris*, that grows so plentifully in both churchyards.

The following gentlemen were proposed for membership :—W. Y. King, H.M. Inspector of Schools, Melrose ; Joseph Archer, Clerk to the Magistrates, Alnwick ; Robert Archer, Solicitor, Alnwick.

There were present at this Meeting :—J. Scott Dudgeon, Longnewton, President ; James Hardy, Secretary ; Sir George Douglas, Bart., of Springwood Park ; W. T. Hindmarsh, F.L.S., Alnwick ; Rev. James Steel, Heworth-on-Tyne ; Rev. R. H. Williamson, Whickham ; Capt. F. M. Norman, R.N., Mayor of Berwick ; Rev. W. M. D. La Touche, Warkworth ; John Cairns, Alnwick ; Edward Thew, Birling ; J. C. Hodgson, Low Buston ; James Heatley, Alnwick ; A. M. Dunlop, Ashkirk ; John Dunlop, Lanark ; Thos. M. Nicoll, Kirriemuir ; J. L. Newbigin, Alnwick ; Major A. H. Browne of Callaly Castle ; G. H. Thompson, Alnwick ; D. Robertson Dobie, M.D., and George Henderson, M.D., both of Coldstream ; Thomas Cook, and W. Brewis, Alnwick ; Prideaux George Selby, Shotton ; and George P. Hughes of Middleton Hall.

CRANSHAWS.

OWING to its remoteness, in the centre of the Lammermoors, the fourth Meeting of the season, on August 28th, at Cranshaws, although well attended, lasted little more than a couple of hours, so that the drive, from and to Duns, occupied the better part of it. Mr Bertram had invited the members to luncheon, but after consultation with Mr McAlpine, it was resolved to have only one meal, the Club contributing its quota to the entertainment. I had gone to Cranshaws with Mr Bertram on the preceding evening, but it being wet and foggy, the view was obstructed. A high wind prevailed during the night, but after a shower at 6 a.m., every shred of mist disappeared, and a beautiful calm day ensued. Mr Bertram being engaged making arrangements, I had the forenoon to myself in examining the features of the

country, as the company did not arrive till 1 o'clock. The farmhouse and castle are situated on a rising ground amidst pastoral or cultivated fields, and both are surrounded with trees. Cranshaws Hill (1245 feet), a high ridge covered with heather, which was still in bright blossom, sweeps round the west side of the cultivable part of the farm. The pasture land to the S.W., with a burn in it, and now well drained, is called the Braid (Broad) Bog; and above it, on a height, are foundations of a steading, believed to be old Thorneyburn. The Salter's road or trackway passes from this site till it is lost among an assemblage of earthen mounds, resembling fortifications, which some of the people attribute to the Highlanders of 1715, near the Longformacus road, above Redpath. Howbog and Comfortlee border on Redpath; the first was once a separate farm which Mr Bertram's ancestors tenanted, when they first came to the neighbourhood; it is now a lonely shepherd's house, attached to Cranshaws farm. On the S.W. also, but nearer Cranshaws, a long fir plantation runs up a field side; which has the Chester's Camp at the upper end of it. Speaking of native wood, Mr Bertram said, that still among the heather, Rowan trees (Mountain Ashes), Birches, and Oaks arise; and that all along, skirting the heights to a place called Hungry Snout, there is still a sprinkling of dwarf Birches among the bogs or heather. At a place now called Cowies-haugh, but in Forrest's Map of Haddingtonshire, 1799, named Cowtes-haugh, and lying on the Whitadder below St. Agnes; although now under culture, the late Mr James Darling, Priestlaw, one of the patriarchs of the hills, recollected that the native growth of scrubby wood on it was so dense that Rooks had their nests in it. The sheep and a flock of goats nibbled it all away.* Dog Law, a hill overlooking this haugh, is 1049 feet high. From the battlements of the castle, there is a fine outlook across the sloping and rising ground on the opposite side of the Whitadder. There is first,

*The goats belonged partly to the Bertrams in Cranshaws, and partly to the Darlings in Horseupcleugh. It is told of them that one dry year their meat failed, and they were removed to Cockburn Law. Every year after that the goats paid it a visit of their own accord. Owing to their mischievous habits, it was found necessary to slaughter them. The most notorious ill-doer was sentenced to be precipitated from the top of Cranshaws castle, and was to be allowed to live if he survived, which he did. The goats were kept for the benefit of those who resorted to the hill-country to drink "Goat Whey."

Harehead, on which a wide extent of cultivated ground has, in recent years, been reclaimed from the moors, as well as resuscitated from the neglected condition into which some arable land had relapsed, before judicious draining was practised. Its highest hill is 1032 feet. I am told that chipped flints are not unfrequently turned up on Harehead; but I have never found any one to collect them. Bothal also shows modern progress; but the highest portion of Bothal Hill still wears its purple vesture, and is better as it is. This joins on to the high heathery hill called Hainshieside or Hainshawside, once an old holding of the Bertrams, during their farming experience. April 10, 1549, Patrick Hepburn of Wauchton, held the lands of Eister Gammelscheilles called Hanchysyde Rig, barony of Hailes. (*Retours, Haddington*), Nov. 7, 1580. James Heriott of Trabroun had the lands of Henshawsyde, barony of Hailes. (*Ibid.*) To plough *hainshyside* is to plough across a slope, when the plough is kept in the soil "against the hand." A "hainshyside brae" is often spoken of in Berwickshire. From a lower position than the castle, the brown summit of Spartleton shows itself through a gap winding out and in as it follows the Whitadder's course. A view of Crichness comes in above Bothal. A branch of the Bothal rivulet divaricates, and a "rig" and a flat intervene between this branch and an extended sloping plateau; Crichness stands on this flattened space. Beyond it rises a crag—Crichness Craigs. A very deep ravine is said to occur there—possibly what is here called a "Crib." When Alexander Bertram was farmer of Crichness, he sold to the Dalrymples of Bass and North Berwick, a lot of Black-faced Wedders, one of which jumped over the rock, swam ashore, and came back to Crichness.

I do not propose to describe the Castle. This can be done to better purpose, when Mr Robert Murray's drawing of it can be engraved. There is a figure of it, with the history of many of its manorial proprietors, in Mr Campbell Swinton's valuable work on the Swinton family. The earliest notice of it is of date 1552. The outside of the walls and turrets are much encrusted with yellow (*Parmelia parietina*), and grey (*P. saxatilis*) lichens.

The successive proprietors of Cranshaws are reckoned to be 1st in 1401, the Douglasses: 2, the Swintons: 3, the Denholms: 4, the Watsons of Saughtree, whose heiress married and carried the estate to the Earl of Morton. But there were earlier holders. In the reign of Alexander II., William de Crennescawe was a witness to a Melrose Charter. (*Liber de Melros*, p. 215).

Mr Bertram had suspended on the stair-case, one of the iron oxen yokes, as well as the strong chains, and another peculiar piece of harness, which had been in use here in his father's time.

The older trees about the castle are elm and ash. The ash timber is much wind-shaken, and several trees are hollowed out in the interior, of which Starlings have taken advantage to nestle within their concavities. They are a recent colony. When we were there they had left for the low country. Jackdaws were once accustomed to build in the chimneys of the castle. The Martins were still frequenting it. Owing to last night's wind, several birds had taken shelter along the side of a planting adjoining the site of the old kirk of Cranshaws. The Chimney Swallow was particularly numerous. There was also a considerable collection of Pied Wagtails among the old grass, associated with Pipit Larks; and a young Whinchat, and a Grey Flycatcher, single birds of each, also accompanied them. They looked like a migratory party, moving slowly across the fields and picking up food on their journey. There were a few Cushats at Cranshaws, and the Rooks were out thus far.

Mr Turnbull remarks that Badgers used to inhabit the Fox cover, and hopes they are there still.

Mr Bertram, in preparation for the Club's visit, had laid bare the foundation walls of the old church, and re-erected some of the tomb-stones in the churchyard. The church has been of a lengthy oblong shape, with a vestry at the west end. There were two doors to the south wall with flagged entries. A portion of the roughly built eastern end remains (left by the heritors to show the substantiality of the original walls, when compelled to erect a new Kirk), which had beneath it a still older wall. The floor was cleared out, and a large number of crania placed together were come upon underneath. Two crania of extraordinary proportions were connected with some gigantic thigh bones. Five oyster shells were turned out, some coffin handles, and some slips of zinc or lead for enclosing window-glass. Near the supposed vestry, a Greywacke stone incorporated in the present wall, is hollowed out, like the half of a basin. It was believed to have been part of a drain to carry off the water that had washed the priest's hands.

On several of the tomb-stones there were some beautiful ornamental carvings, and foliaceous decorations round the margins or tops, as well as on the corners of throughs. The

emblems of death's heads and cross-bones were contrasted with plump happy-looking cherubs. One stone with Foord on it, of date 169—, had on it an hour-glass and hand-bell; probably emblematic of the office of sexton. Another showed the spade and shovel in saltier, perhaps dedicated to another "trusty brother of the trade," as Blair grimly puts it. On one stone of date 174—, is a gentleman in the dress of Charles II., or James VII. Half-figures of husband and wife appear on others. On one, a female wears a furbelowed tippet, and beneath are displayed four hearts in the quarterings of cross-bones. I have not described all their peculiarities, as some were turned over after I had left. The stone-cutters, whoever they were, have been practised hands, and not country masons.

The Swinton burial ground is enclosed within the walls encircling the tower. Two of that ancient race were laid there. Catherine Lauder, daughter of the family of the Bass, wife of John Swinton, of Swinton, died soon after 8th October, 1515, and by her will directs her body to be buried "before the altar of St. Ninian, in the parish church of Cranshaws." (*Swintons of that Ilk*, p. 39.) The altar to this saint points to a very early origin of the church here. In the Papal Taxation of churches in the early part of the reign of Edward I., the church of Craneshaues, in the Deanery of the Merske, was valued at £20, and the Tithe at 40s. (*Coldingham Correspondence*, etc., Surtees Society, App. p. cx.)

There are only three Farms in the parish—Rawburn, Cranshaws, and Bothal, with roads to the Kirk from each, two passing through Cranshaws farm; the outer ground of which, nearest the first, is called Rawburn shot; that traversed by the Bothal path is Bothal shot.

Our remarks are confined to a very limited circuit round Cranshaws, and exclusive of places higher up the Whitadder.

I went down to the modern church to await the company. There was nothing to show except the square slab of the Lion and Unicorn supporting an open crown, that had been removed from the original church. It is beautifully finished and well preserved. The manse is modern.

There is not much of interest in the cottages not far off. One is now called the Rowan tree, although formerly its name was the Boon (Elder) tree, from some old standard bush of either the one or the other that may have often gladdened the heart

of the toil-worn wayfarer, with the certainty that he had made progress thus far.

The company then proceeded to view the castle. A number climbed the heathery hill above, and picked up examples of White Heather, and the Petty Whin (*Genista Anglica*.) A slippery green Alga (*Draparnaldia plumosa*) was fished out from some of the pools by Mr Dunlop.

There was speedily a recall to dinner, which was laid out in the lowest compartment of the castle, as being the most ample; and room was found for all; the President in the Chair, Mr Bertram acting as Croupier. After the usual toasts, the President proposed Mr Bertram's health, with the thanks of the Club, which was drunk with all the honours. A paper was afterwards read by Mr Bertram, containing his Notes on Objects of Interest in the neighbourhood. When this is enlarged, as it is hoped it will be, it should be printed in the Proceedings for future reference. Mr Hardy read translations of the monastic charters relating to Bothal, Priestlaw, and Panshiels, which are all in the vicinity. They are held in reserve.

THERE WERE EXHIBITED AT THE MEETING—

1. Three Drawings by Mr Robert Murray, Architect, Edinburgh, of:—
1. of Cranshaws Tower. 2. of Plans of Floors: Roof and Section.
2. Pencil Drawing by Miss Cochrane, Galashiels, of Bronze Arrow Head found at Craig park, Galashiels, in 1887. "Craig park is, on the northern slope of Gorkhelm (Gala hill), distant about half a mile from the Catrail." (A. Cochrane, junr.) It was at Gorkhelm that Earl Patrick took refuge after being defeated by Wallace in the Park at Coburns peth. This, Blind Harry, who perhaps had heard of the Catrail, describes as a military parallelogram of immense size.

"The strenth was thik and strong,
Sewyn myill on breid, and thart twyss as long.
In till Gorkhelm Erll Patrik leiffit at rest."

Book viii., pp. 174-5.

Gorgum is still the top of Hill above Gala House.

Bronze Arrow Heads are extremely rare.

3. Drawing in chalk, by Mr Henry P. Taylor, of a very fine Stone Celt found in June of 1889, when draining a grass-field at Linshiels, on the Upper Coquet, above Alwinton, the property of Mr Selby of Biddleston. The Celt is smooth all over, and is as perfect as on the day when it was made. It is probably of what the Scottish Antiquaries call "Felsite;" more properly of metamorphosed slate.
4. Photographs, from Miss Russell of Ashiesteel, of Inscribed Rocks at Dodd Law near Doddington, Northumberland; and Rubbings of Rock-circles from Chatton Law, taken by Miss Russell.
5. A specimen of a rare Longicorn Beetle which came from Mr E.

Morton, Dunstan, Lesbury, probably introduced with wood from the Norwegian coast or Scotland. It is *Acanthocinus ædilis*, L. It is said by the late Mr Murray to be "not scarce in Rannoch."—(Cat. of Scottish Coleoptera, p. 84.) It was addressed to Mr Hindmarsh, who consigned it to me.

6. *Anthemis Cotula*, not recorded in the Alnwick Flora, was found in July in a field at Low Buston, when I was visiting Mr J. C. Hodgson.
7. *A. tinctoria* was found by one of our members on the railway banks near Berwick, but, although I saw the specimen, I have not the particulars.

The Rev. John Walker had brought from Whalton a stone—a mixture of sandstone and limestone—shaped like a goose, taken at 4 feet depth, out of a drain when digging. The eyes and a slit for the opening of the mouth were shown on it. Some thought that it might have been a heathen god that had been dropped into a well-head; others more rationally opined that it was a concretion—a "freak of Nature." An old man on his death-bed had presented it to Mr Walker, and was uneasy until he had relieved his mind about its future safe custody.

In the farm-house Mr Bertram showed Old Farm-Books previous to 1745, and others; Old Family Bible printed at Amsterdam; a copy of Extracts from the Presbytery Records and Law Proceedings concerning an Excambion and transfer of Manse, Glebe and Church, 1710 to 1730; Mr Campbell Swinton's "The Swintons of that Ilk and their Cadets." Mr Bertram mentioned that he had found a brass-pot in the Cruel Sykes on Cranshaws, which he had presented to the Scottish Antiquarian Museum.

There were present at this Meeting—John Scott Dudgeon, Longnewton, President; James Hardy, Oldcambus, Cockburnspath, Secretary; Edward Johnson, M.D., Tweed Villa, Kelso; Rev. John Walker, Whalton, Morpeth; Rev. Macduff Simpson, Edrom; Joseph Wilson, Duns; Rev. Thomas Martin, Lauder; Dr. David Skinner, Lauder; Rev. A. P. Hogarth, Moonzie, Cupar-Fife; Dr. Robert Shirra Gibb, Boon, Lauder; John S. Bertram, Cranshaws; David Watson, Hillside Cottage, Hawick; Charles Watson, F.S.A. Scot., Duns; Thomas Darling, junr., Berwick; Rev. David Workman, Stow; Stewart Stirling, M.D., Clifton Terrace, Edinburgh; Capt. Arthur J. Forbes, R.N., Berwick; John Turnbull of Abbey St. Bathans, W.S., F.S.A. Scot.; John S. Wilson, Australia; J. J. R. Storer, Alnwick; Charles Stuart, M.D., Hillside, Chirnside; John Turnbull, Ettrick View, Selkirk; James Wood, Woodburn, Galashiels; Alexr. Murray Dunlop, Ashkirk; George Tancred of Weens; John Williamson, Duns; George Fortune, Duns; James Watson, Duns; H. J. Birch, Hillside, Hampstead, London; Dr. James

Denholm, Broomhill, Duns; Michael Muir, Fernlea, Selkirk; George Veitch, Brighton; Richard Stephenson, Chapel. The Rev. R. Hopper Williamson, Whickham, and two other gentlemen visited Duns Castle Grounds, which were open, and returned to Berwick.

There were proposed as new Members; Rev. J. Wood Brown, M.A., Gordon; Frank Muirhead, Paxton; David Hall, Ingram; William Young, Berwick; James Lockhart Wilson, M.D., Duns; George Veitch, Brighton.

BEADNELL AND NORTH SUNDERLAND.

THE fifth Meeting was held on September 11th, at Beadnell and North Sunderland. The meeting-place was Beadnell, where Mr R. T. N. Howey-Taylor had invited the Club to luncheon, before conducting the company through the extensive, varied, and most instructive assemblage of objects that he had been at great trouble in setting out for their inspection. The party arrived from three different directions; those from Berwick and Belford, by brake from Belford Station; others by walking from Chathill Station, or by private conveyances; and the rest by brake from Alnwick. At Belford, the morning broke grey and cheerless, and then rain fell gently till 10 a.m., when the mist thinned, and the clouds rose higher; but during the journey, umbrellas were in repeated requisition. The route was by the back of Easington Crag; and then by Outchester farm on the right, and Chesterhill on the left, past Warren Mill, and House, and village, and bridge, and then wheeling round Budle Bay, towards Budle House, and in sight of Ross, amidst its clump of trees on the flat, in the distance. Ross and Budle Cockles have been long renowned; but it is not so well known that Budle Codlings were once of rival fame. Thomas Moufat or Muffett, a great physician and naturalist, who flourished in the reign of Queen Elizabeth, born in London, and educated at Cambridge, who died about 1604, besides being the author of a Treatise on Insects, (*Insectorum sive Minimorum Animalium Theatrum*, Londini, 1634) containing several original observations, wrote a book on diet, entitled "*Health's Improvement*." In it he pays considerable attention to Fishes, and is careful to record where those of best quality were obtained. Of Codlings (young Cod) he says: "Codlings are taken in great plenty near to *Bedwell*,

in *Northumberland shire.*" (Edition of 1655, p. 155; also Lovell's "*Hist. of Animals*," Oxford, 1661, p. 233). No vestige of this fishery survives in modern times. Then passing Budle House, and within sight of Spindleston hills, about Dukesfield, there opens out a fine view of Bamburgh Castle, towering up like a pyramid, and almost undistinguishable from its basal rock. Among the craggy heights round—Budle and Brady Crags—I collected, having gone there for the purpose, the Coleopterous Insects to which the locality of "Budle Crag" is attached, recorded in the "*Catalogue of the Coleoptera of Northumberland and Durham*," that appeared in the early volumes of the "*Transactions of the Tyneside Naturalists' Field Club*; little thinking then that "*haec olim meminisse juvabit.*" Glororum, Burton, and Bamburgh Friars appear successively. On the latter, we are told that recent excavations have been made, with unknown result.

The village and castle are left behind, and the fantastically ridged benty sand-hills, and yellow rag-weed-clustered flats (great nursery of the caterpillars of *Euchelia Jacobæ*) are skirted. The Farne Islands always bare, look their best, amidst the unruffled waters of this quiet day. Inland, the hill ridges, magnified by the prevalent moisture, stand in their ranks, each eminence retaining its distinctive individuality. Beyond Monks-house, a rivulet is crossed, and we see Fowberry, Old and New Shoreston, and Shoreston Hall, the last mentioned places being the modern substitute of an old "*villata*" or Village Community of the Saxon and early Norman period. The coast becomes rocky as North Sunderland Sea-houses are reached, and at North Sunderland Point or Snook, we are introduced to the series of strata that are to form the subject of the day's observations. The disused lime-kilns and deserted granaries here, are melancholy tokens of the recent decay of a once prosperous industry. After crossing Swinhoe burn, and passing Annstead, the road turned up to Beadnell, a lengthy village among sheltering trees, the representative of the Bedenhall of the olden time, when it was held in drengage by a family who took their surname from it, which subsequently modified into Beadnell, was not without local distinction, although never attaining permanent importance. On arrival, most of the company had preceded us, for we had had a long drive. The Alnwick members mentioned that they had remarked of the Ash trees

passed on the exposed open country they had traversed, that the top branches of every one were injured. On the approach from this side, there was forgotten to be mentioned at the meeting, although Mr Howey-Taylor had apprised me of it, that at the side of the public road at Swinhoe Heugh, on widening the road a short time ago, the workmen came across the remains of three human beings buried some three feet below the surface, with feet to the west, according to Christian practice.

After partaking of the profuse hospitality, the company were invited to view the numerous objects of interest surrounding them, in Pictures, Books, Old Furniture, Minerals, and other Natural History Specimens, etc. Mr Howey-Taylor has taken great interest in the fishing population of the coast, in the better construction of their fishing boats, which at present are continually liable to be swamped on the unforeseen outburst of a storm. With this object he advertised for plans and suggestions, the result being that he had had a large number of letters from all parts of the country, with suggestions and plans for the accomplishment of this object. He demonstrated to the members, by means of a model of a fishing boat, the most acceptable idea by which air-tight compartments can be fitted into the bottom of an ordinary boat, and suggested the employment of sand as ballast, in place of the big stones ordinarily employed. He then showed photographs of a Porbeagle Shark captured on 29th Aug. off the coast by a boat's crew belonging to the place. An extract from the *Berwick Advertiser* Sep. 6, 1889, relates the circumstances.

"*Capture of a Shark.*—On Thursday last week, the brothers Handysides and Douglas, while working their great lines on the bank which lies just south of the Farne Islands, found that something unusually heavy was attached to the line. It proved to be a shark, and the line was tightly hitched round the monster's tail. The crew succeeded in hauling the shark into the coble, and subsequently in landing it. It measured 9 feet from snout to end of tail, with a girth of 4 feet 3 inches. On opening the stomach, it proved that the shark had lately dined, and that his dinner had consisted of cuttle fish. The fish is locally known as the 'Blue Shark,' and is credited with being inoffensive. The fishermen pronounced it to be a male fish, and estimated his weight at 18 to 25 stones."

It could readily be determined from the photo to be a Porbeagle Shark (*Squalus Cornubicus* Gmelin, *Lamna Cornubica*, Fleming.) Dr. Embleton had already recorded this shark from this coast. (Tate's Hist. of Alnwick, II., p. 438.) Not long ago I examined a large example that had been entangled in a salmon net off Redheugh, Berwickshire.

In the garden much interest was taken in a fine specimen of *Yucca gloriosa*, which had recently flowered in the open air, and contrary to general precedent cases, had not exhausted itself, but had produced new and lively shoots.

Our host having been thanked by the President with the cordial concurrence of the company, they then proceeded to view the Church, and the oldest houses of the village, including the two Peels, one of which is now the Craster Arms Inn; and Dr. Embleton's collections; finally following Mr Howey-Taylor through the Pasture, where his Colliery is still in operation, yielding coal for local consumption, on to the "Little Rock," St. Ebba's chapel on the "Snook" or "Nook," and then along the coast northwards. I shall first take up the Rev. C. F. Thorp's Notes on the Church.

The date of earliest Church or Chapel in the Village of Beadnell is not known, but a Church was in process of rebuilding in 1745.

In 1792, it was again rebuilt and enlarged. Registers date from 1766. In 1860, windows were inserted in the north wall, and gables were added to the outside with a view of improving the appearance of the building.

In 1888 the Church was re-roofed and entirely renovated inside.

The Deed of Severance between Bamburgh and Beadnell was executed August 26th, 1766.

Henry Elliott, Curate, 1766.

Michael Maughan, Curate, 1790.

John Ayton Wood, P. Curate, 1831.

William Cumby, Incumbent, 1853.

John Charles Dunn, Vicar, 1878.

Charles Fenwick Thorp, Vicar, 1887.

Mr Howey-Taylor has also kindly furnished me with notes of what was to be seen in the house, and afterwards of what he had pointed out in the village and on the coast. I give the whole as a valuable document of the day's proceedings, and as a comment on the late Mr Tate's important paper in the Club's Proceedings, vol. iv., pp. 96-110, entitled "The Geology and Archæology of Beadnell, in the county of Northumberland, with a description of some Annelids of the Carboniferous Formation."

OBJECTS OF INTEREST IN THE HOUSE.

MAPS, dated 1707 and 1759 respectively, and showing the landowners at those dates.

The 1707 map which was evidently a survey taken immediately after the partition of common lands among the adjoining proprietors, gives as the then owners:—Forsters, Ogles, Hastings, and Taylor.

The 1759 map shows that the Ogles' land and most of the Forsters' land had become the property of Thomas Wood Esq. of Bednel (i.e. Beadnell).

The Woods of Beadnell were formerly owners of Presson, near Carham, and also of Burton and Falloden, in this county.

The estates of *Falloden* and *Burton*, now belonging to Sir Edward Grey and Lord Grey respectively, passed by marriage of Hannah, daughter of *Thomas Wood of Falloden*, with Sir H. Grey, whose son was 1st Earl Grey, and whose great-great-grandson is the present Sir Edward Grey of Falloden and M.P. for Berwick Division, Northumberland.

The family of Wood was also connected by marriage on one side to the old Craster family, and on the other to Forsters of Adderstone, Tuggal, Newham, Fleetham, Brunton, etc.; the Forsters again being intermarried with Ogles of Eglington, Hebbornes of Hebborne, and Collingwoods of Great Ryle.

This connexion by marriage suggests an explanation as to the transfer of all the Beadnell property from Ogles and Forsters, to the Representatives of the Wood family, between 1707 and 1759, as shown on the old maps.

The Forster family (contraction of the word Forester) date back to the time of King John, and owed their extensive possessions in the north to various grants made in return for services rendered to the King.*

FOSSILS.—A collection of local fossils, many polished, and principally Ecrinites, and others peculiar to Mountain Limestone.

DR. EMBLETON'S BOOKS.—Some volumes of Club Transactions compiled by the late Dr. Embleton, and embellished with amateur drawings, photographs, etc.

Sections of Borings for coal recently carried out in neighbourhood.

COAL.—Specimen of coal from within a few feet of Whinstone Dyke, showing roasting effect of the dyke when in a molten state.

DUNSTANBOROUGH DIAMONDS.—Some of these were pure Quartz crystals others were Amethystine originating in a foundation of Quartz.

OUTSIDE.

INN.—North portion of old Peel Tower with walls of great thickness and stone arched roof to ground floor; sixty years ago it was flat roofed.

The south portion is a more recent addition, with inscription F.
I. S. 1751.

VILLAGE, ATKINSON'S.—Two coats of arms and crest of Forster family; one plain shield with chevron only, the other quartered with another branch of same family, the quarterings introducing hunting horns: both having as crests, Stag's Head and motto *Redde Diem*; also cottage F.E. 1676.

MRS. EMBLETON'S MUSEUM.—Stuffed animals, Birds, Beetles, and large collection of Marine Crustacea, many taken from the stomachs of cod and other fish caught off the coast. Also fossil trunk of tree found in free-stone at Haven Rock, Beadnell, and referred to by Tate, p. 101.

* The Harding family, who came from Beadnell, rose to distinction in Newcastle. Roger Harding, son of William Harding, M.P. for Newcastle in 1433, and later years, acquired Hollinside on the Gibside estate, near Whickham, co. Durham, by marriage with Elizabeth, daughter of Roger del Outhe, the owner. The Hardings held Hollinside till 1732 or later. Proc. Soc. Ant. Newcastle, II., p. 186.—J.H.

FIELDS.—On leaving village for Ebb's Nook, subsidences in the field shown as caused by old workings drowned out in 1813, by the admission of the sea into the workings at low water-mark. An old copy of legal proceedings proves this to have been intentionally done by adjoining colliery tenant.

Further down the field the site and line of the Great Whin Dyke was pointed out, crossing the footpath on its way from the sea towards the west, and lying so near the surface that it causes the compass to deviate if tried in its immediate vicinity. South side of dyke, dry and dusty.

COLLIERY.—Was recently repaired by Mr Craster.

HARBOUR.—Limekiln in ruins being rapidly wasted away by the encroachment of the sea.

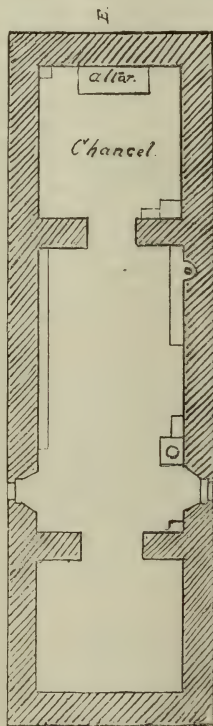
EBB'S NOOK.—The old chapel partly cleared out by permission of J. Craster, Esq., so as to trace the various portions described by Tate in 1858.

A few of the stone Sycatts with holes for mutton bones were found during the excavation, being the stone slates alluded to by Tate.

[A plan is here given of St. Ebba's Chapel, from a drawing preserved in Dr. Embleton's collection. Outside, the mound of the churchyard wall is still visible. In a great gale, the fishermen said that two skeletons had been laid bare. This is in addition to what is mentioned in Club's Proc., iv., p. 109].

On the north side of Ebb's Nook could be seen the rapid wearing away by the sea of the shale underlying the Ebb's Nook rock; and evidences of the rapid destruction of the rock itself could be seen in the enormous boulders which had fallen from the cliff. Evidence in half-tide shaft, 8 ft. from cliff, and below the high-water shaft some 90 ft. from the cliff. As both these shafts must have been sunk when there was a solid covering above and out of reach of the tide, they show the encroachment of the sea within no great period. Both of these shafts have been put down for the purpose of getting at the Dryburn or Lowick coal which lies a few feet below, and is given by Tate as 12 in. thick.

SHORE.—Then following along shore to northwards, the 8 yard Limestone was pointed out, and next halfway along the



sea-wall, the Whinstone Dyke was seen running out to sea, distinctly defined by its black colour, and at low-tide to be seen for a distance of 450 yards from shore as a solid black wall 24 ft. thick, intersecting at an angle the Blyth Rock (6 yard Limestone), a Freestone known as Benty White Rock, and the (8 yard Limestone) in succession; the metamorphosing action on the adjacent rocks being distinctly shown.

GALENA.—100 yards north of the Dyke is the vein of Galena mentioned by Tate, running almost due N. and S., according to compass; the specimens obtained varied from $1\frac{1}{4}$ in. to $1\frac{3}{4}$ in. thick.

COAL.—A 12 in. seam of coal, supposed to be Shilbottle, crops out a few yards south.

TOD'S POINT, RED BRAE.—A short way north we come to an 8 ft. Limestone, and shortly afterwards the 9 yard Limestone known as Beadnell or North Sunderland Main Limestone. It is the recurrence of this 9 yard Limestone, followed as it is by the 4 ft. Limestone and the Beadnell Main coal underlying, all of which are plainly to be seen at Sunderland Point, that proves the existence of the 1000 ft. fault at or near the Annstead Burn, and which has carefully been studied and issued by Professor Lebour, in the "Proceedings of the N. of E. Institute Mining and Mechanical Engineers," Vol. xxxiii., 1884. The Point formed by the 9 yard Limestone and underlying Freestone is known as Red Brae or Dell Point, also locally as Tom Tod's Point. This Point is interesting as showing the sites of ancient Salt Pans, Lime Kilns, and old Coal Shafts. The kilns and salt pans have almost disappeared into the sea, but the old map of 1759 shows four draw-kilns in working order, and a wind-mill in operation at the Pit shaft. It was off this point that the sea was let into the colliery by the then colliery tenant, in 1813.

In the Field to the west of the Road is to be seen an old Quarry (9 yard Limestone) which supplied the Limekilns at the Harbour, some 50 years ago. From this point to the northwards there is a succession of Freestones, Shales, Limestones, and Coals; including the 30 inch, 5 yard, 5 feet, and 6 feet Limestones; and 16 inch (Stone Close), 16 inch (Swinhoe), and 18 inch (Fleetham) coals, until we come to a stretch of sands at the mouth of the Sunderland Burn.

FAULT.—It is within the limits of these sands that the Great Fault, estimated at 1000 feet, occurs. Mr Lebour gives the direction as about west by north. The Geological Surveyor gave it a direction of west by south; but from notes taken from the original note-book of the late Mr Wilson of Shilbottle, kindly lent me by his son, and also from other information, I am inclined to believe that its direction is between these two; that is, it passes through the north part of "Fleetham" farm, the south-west field of "Pasture Hill," and thence through north of "Coldrife" into "Newham" farm. We have no reason however to be sure that the Fault takes a straight line in its course.

NORTH SUNDERLAND.—Crossing the Annstead burn, we see at once our Beadnell 9 yard Limestone, followed by the 4 feet Limestone and the Beadnell Coal cropping up, whereas they should all have been 1000 feet

above our heads, if the Fault had not thrown them all down that distance. The 9 yard Limestone has at one time been most extensively worked at North Sunderland, as is seen by the Quarry face extending for half a mile from sea shore to westwards, and the massive Limekilns to be seen at the head of the Harbour. After passing the Harbour the Limestones, Free-stones, and Coals, all appear again in regular rotation, but dip to the north, and apparently rise and fall until they appear again at Holy Island.

On examining the fishermen's catch for the day, it was remarked that a Sea Bream (*Bramus centridotus*) had been captured, which is here accounted rare; also a Turbot. Dr. Embleton in his local list, in "Hist. of Alnwick," does not notice the Sea Bream. Capt. Norman picked up a pretty pink flowered variety of the Milfoil (*Achillea millefolium*). On getting back to Beadnell, it was pointed out that in one of the enclosures there grew much of *Symphytum asperinum*, which had spread on to the road-side. It had been introduced by Mr Wood of Beadnell, as food for cattle, but they rejected it, unless when pressed by necessity.

The company then departed for North Sunderland Sea-houses, and inspected the commodious new Harbour. There were many coble-boats of a medium size in it. The dinner was under a tent (lent by Major Browne) pitched in Mr James Scott's field.

After dinner there was exhibited the fine smooth felstone Celt, mentioned at Cranshaws, sent from Biddleston by Mr Peter Dodds, with Mr Selby's consent. Another heavy stone Celt of greywacke, 9 inches long, of a conico-fusiform shape, with blunt edges, was shown to me next day by Mr James Tait at Belford. It had been found when enlarging the fish-pond at Belford Hall. Twenty-seven dined, but three others had to leave early; the President, Mr Scott-Dudgeon; Major-General Sir William Crossman; and Mr Mathison, Wandy Law. In addition there were present; Mr C. B. P. Bosanquet of Rock Hall, Chairman; Mr James Hardy, Oldcambus, Secretary; Capt. F. M. Norman, R.N., Mayor of Berwick; Rev. Evan Hughes, North Sunderland; Mr Adam Robertson, Alnwick; Mr Joseph Archer, Alnwick; Mr George P. Bosanquet, Rock; Mr John Rosecamp, Shilbottle Colliery; Rev. J. Golightly, Shilbottle; Mr John Cairns, Alnwick; Major A. H. Browne, of Callaly Castle; Rev. C. F. Thorp, Beadnell; Mr H. A. Paynter, Alnwick; Mr J. A. Horsford, Long Melford; Mr G. H. Thompson, Alnwick; Mr John James Horsley, Alnwick; Mr James Scott, Sea-houses; Dr. L. G. Broadbent, Bamburgh; Mr R. G. A. Hutchinson,

Bamburgh Castle ; Mr Henry P. Taylor, Aberdeen ; Mr James Tait, Belford ; Rev. Charles Robertson, Belford ; Mr Edward Willoby, Berwick ; Mr George Bolam, Berwick ; Dr. Edward Johnson, Kelso ; Mr James Thomson, Shawdon ; Mr R. T. N. Howey-Taylor, Beadnell Hall.

The following were proposed as members—1, Mr Andrew Ker Davidson Moffat, Beanley, Alnwick ; 2, Rev. Charles Robertson, M.A., Vicarage, Belford ; 3, Rev. Evan Hughes, Vicarage, North Sunderland ; 4, Mr R. G. A. Hutchinson, Bamburgh Castle.

BERWICK.

THE ANNUAL MEETING was held at Berwick, on Wednesday, October 9th, and there was a fair attendance of Members. As usual, the "Anchorage," the residence of Mrs. Barwell Carter, was open ; and several availed themselves of the kind invitation of that lady to inspect the precious memorials connected with the Club's History, which she is always so pleased and ready to show. The Club is greatly indebted to her and other lady members and friends for the continued interest they manifest in its welfare and operations.

The business meeting took place at the Berwick Museum, when there were present among others—Mr John Scott-Dudgeon, Longnewton, President ; Mr James Hardy, Oldcambus, Secretary ; Mr Robert Middlemas, Alnwick, Treasurer ; Sir George Douglas, Bart., Springwood Park ; Capt. F. M. Norman, R.N., Mayor of Berwick ; Capt. Forbes, R.N., Berwick ; Rev. Peter Mearns, Coldstream ; Mr R. G. Bolam, Berwick ; Mr A. T. Robertson, Berwick ; Mr George Bolam, Berwick ; Rev. E. Rutter, Spittal ; Mr John Bolam, Bilton ; Mr G. P. Hughes of Middleton Hall ; Mr James Heatley, Alnwick ; Mr G. H. Thompson, Alnwick ; Mr W. T. Hindmarsh, F.L.S., Alnwick ; Mr W. B. Boyd of Faldonside ; Mr R. T. N. Howey-Taylor, Beadnell Hall ; Rev. Ambrose Jones, Stannington ; Rev. William Osborne, Embleton ; Dr. Edward Johnson, Kelso ; Mr Middleton H. Dand, Hauxley Cottage ; Dr. Gibb, Boon ; Mr William Wilson, Berwick ; Mr John Dunlop, Norham ; Mr William Weatherhead, Berwick ; Mr James Thomson, Shawdon ; Mr Thomas Mathison, Wandylaw ; Mr John Scott, Berwick ; etc.

The President having delivered his Address, nominated Major General Sir William Crossman, K.C.M.G., F.S.A., M.P., as President of the Club for the ensuing year; and a letter of acceptance from Sir William was read. The Secretary then read a synopsis of the Club's Proceedings during the year; and the following new nominations for membership being made, viz: Mr Robert Crossman, Cheswick House; Mr Lawrence Morley Crossman, Goswick, Beal; and Mr Wm. Charles Caverhill, Berwick; these gentlemen, along with those who had been proposed at the Meetings during the season, were duly elected members.

The places fixed for the Meetings in 1890 were—1, Beanley; 2, Callaly Castle; 3, Melrose for Allan Water; 4, Hawick for Stobs Castle and Slitrig Water to Robert's Linn; 5, Carham, including the Border Line, Wark Castle, and Cornhill; 6, Berwick.

The subscription for 1890 was fixed at seven shillings.

The books belonging to the Club will now be lodged at Berwick, in the Institute, and the unsold copies of the Club's Proceedings will also be deposited there, under the charge of a committee of the Club.

Mr John Bolam was appointed Auditor of the Club's accounts.

The Mayor of Berwick proposed that they accord a hearty vote of thanks to the retiring President for his able and interesting Address that day; which Mr G. P. Hughes seconded. The President returned thanks, and the meeting separated.

Afterwards the members dined together in the King's Arms Hotel, with Mr G. P. Hughes in the chair. Before parting, the hearty thanks of the members were accorded to the Mayor of Berwick, Captain Norman, and a few other members of the Club, for the valuable part they took in maturing and carrying through the admirable arrangements which contributed so much to the enjoyment of the excursionists from the British Association at Newcastle-on-Tyne, after their recent Congress in that city.

Low Buston. By J. C. HODGSON.

IN THE Parish of Warkworth, between the Coquet and the Aln, and washed by the sea, are the two ancient townships of High and Low Buston. Their population is wholly agricultural, dwelling around the different homesteads. They are crossed lengthways by the main line of the North Eastern Railway. Excellent freestone has been wrought for building: and coal exists, but perhaps in unremunerative quantities. Each of these townships maintained its own poor and highways; and as they are in different baronies, the history of each can be separately traced.

The lower township, formerly called Nether, now Low Buston, contains 898 acres. (*Ordnance Survey*). Its rateable value in 1831 was £1520, and in 1889 it is £2395, (including the N.E.R., rated at £1162). In 1831 the population was 103, and in 1881 it was 95. Under the old system of rating, Low Buston with Spittle House was reckoned as containing 13 farms. (*Church Books*.) The Rectorial tithes, formerly the possession of the Bishop of Carlisle, now belong to the Ecclesiastical Commissioners, and are commuted for £143 18s. 6d. The Vicarial Tithes commuted for £71 4s., belong to the Vicar of Warkworth.

Like the neighbouring township of Sturton Grange, Low Buston is a reputed manor in the Barony of Wark-on-Tweed, which, by King Henry I., was granted to Walter Espec, and held by two Knight's fees. Walter Espec died about 1153 (*Hartshorn*, vol. II., pp. 31, 34), and his Barony ultimately devolved upon his sister's grandson Everard de Ros, the giver of Sturton to Newminster. His son, Robert de Ros, married Isabella, natural daughter of William the Lion, King of Scotland, and had two sons, William de Ros and Robert. William *inter alia* held of the King in cap. the Manor of Butlisdon, (*Testa de Nevill*), which of him was held by his brother Robert, and we find "Ranulph de Butlisdon and William hold a moiety of Butlisdon inferior, of Robert de Ros for xs." in socage. The last named Robert de Ros was the founder of Bolton Hospital, and a Chief Justice of King's Forests in Northumberland, 1237-1244. In 1290 (*Hodgson*, part III., vol. I., pp. 73, 80, 134), Robert de Ros claimed 'infangenthef' in his vills, and in 1293 his son of the same name was summoned to show by what warrant he held Wark and its manors, including Butlisdon: he rebelled 'for the sake of a fair Scotswoman,' joined

the Scottish army and died in 1317. His son William relinquished his claims on Wark, for lands belonging to the Crown in the south of England. In 1345, Wm. de Monte Acuto, Earl of Salisbury, was possessed of Wark Castle, Boteleston, etc., and in 1363 Richard de Botilstoun is mentioned as possessing "Botilstone, Brothirwik, Werk on Twede, Over Botilstone," with their lands and tenements. In 1367, Mary, daughter and heir of John Orby, and afterwards wife of John de Ros, was baptised at Warkworth Church.—*Arch. Æl.*, vol. iv., p. 328.

The Newminster and Brinkburn Chartularies have preserved for us particulars of many gifts or benefactions of land in this township to their respective houses. They may be referred to the 13th and 14th centuries. Eleven of the Newminster charters relate to Low Buston. Robert, son-in-law of Hulward of Butliston, gives of his land in the Buston field, 1 acre at the northern part of the Bradmedowe (c.iii.) Margery, daughter of Robert of Butliston, gives 1 acre in the ville of Suthbutliston (c.j) An agreement is made at the Court of Robert de Ros, to determine the dispute between the monks and the Buston tenants, as to grinding at the Grange Mill. Edmund, son of Edmund de Botiliston—evidently a chief-tenant—agrees that he and his heirs will pay to the Monks 18s. a year, for which he shall be free of multure, and shall grind his corn next after the batch in the hopper. The same Edmund gives of his land in the Buston field, 1 acre called Saltrig next to the ground given by Hugh, son of Gregory, to the Canons of Alnwick (c. v.) Robert de Ros confirms the agreement (c. xi.) Hugh, the son of Gregory of Butliston gives in the field of Butliston of Robert de Ros, 1 acre called the Bradaere next the Greneletch (c.iiij.) The 9th Charter shows us that the ancient dispute as to multure and grinding had been revived, and Hugh, son of Gregory of Bittliston, declares that "from old time even before Everard de Ros gave Sturton to the monks, that his predecessors and their men had been used to grind at the Mill of Sturton, the Lord of the ville being free of multure, and his men paying the 'tercium decimum' toil that false information had been given to the monks that he and his men did not confine themselves to their mill (*i.e.* that of the monk's), and he agrees that he will bring his corn to grind on the old terms. Henry, son of Hugh de Butliston, gives two acres in the Buston field, viz: 1 acre called Heyrigidacre (high-ridged-acre—ploughed with gathered ridges for the moisture to run off) near the Birling

field and 1 acre at the western part of the Salters' lech near the moor (c. vi.) William, son of Henry of Butliston, gives two acres of land next that of Hugh of Brotherwyk, and Ralph the son of Edmund. He also gives that acre of arable land called Fletys in the Buston field next the ground of William the smith and the Tyot ground; he likewise confirms the grants of Henry his father, and Hugh his grandfather, and the agreement of the said Hugh as to multure (c.x.) In the 5th Newminster Charter, a reference will be found to a grant to the Canons of Alnwick by Hugh the son of Gregory. No mention of this is made in the Alnwick Chartulary as given by Tate, but from Clarkson's Survey we know that Alnwick Abbey had possessions in Nether Buston—which will be noticed later.

In the Brinkburn Chartulary are three Charters which probably relate to this township.² Hugh, the son of Gregory de Butlesden (the benefactor of Newminster) "gives a rent charge of 6d., which William, son of William de Butlesden, assigned to me and my heirs out of 19 acres of land in Nether Butlesden." William de Botlesden gives for the lights, a rent charge of 18d. to be received from Henry 'Palmerius' and his heirs out of a burgage in Warkworth. Stephen de Gilling 'clericus' and Agnes his wife give 18d. out of a burgage in Warkworth formerly belonging to William de Budlesdon.

In these Charters we have traces of two families: Gregory de Butliston and his son Hugh (living in the time of Robert de Ros) the grandson, Henry son of Hugh, and the great-grandson, William son of Henry; they were probably the tenants or owners of one moiety. Edmund de Butliston, his son, Edmund son of Edmund, and Ralph the son of Edmund, were perhaps the owners of the other moiety. They paid yearly a fixed sum to the lord who had no demesne lands. Under these two, the under tenants held individually particular houses—built near 'the bottle' or hall or manor house—closes and gardens, with a common pasture or moor and the open field cultivated on the runrig system. They were able to alienate their closes and enclosures to the monks—probably on their death beds—for

¹ Hugh of Brotherwyk was probably Hugo de Hamville, who held Brotherwyk, in capite of the King, "pro austurcum dni Regis custodiend," by the service of keeping the King's falcons.—*Testa de Nevill*, p. 388. J.H.

² *Arch. Æl.*, Brinkburn Chartulary, Index, and Canon Greenwell's MS. notes of the Abstract.

their souls' salvation and to secure that of their ancestors and descendants. We see them rebelling against the exactions of the miller, taking their corn elsewhere to be ground, and agreeing to return to the Grange Mill to pay the same toll which their fathers paid.

About 1400, Wark, with its manors, passed from the family of Ros to that of Grey of Heton, ancestors to Lord Tankerville. (Hartshorne, vol. II., p. 36).

In 1505, at an inquisition taken at Haltwhistle, the Jury say that Ralph Grey was seized at his death of the manor and town of Wark....Buttuliden, the Grange of Stracton....and the aforesaid manor of Buttuliden is worth per annum, beyond reprises, £10, and the aforesaid manor of Grange of Stracton is worth per annum, beyond reprises, 10 marks.¹

In 1567, Clarkson in his Survey of the Warkworth Barony, affords an explanation of the township being cut off from the river Coquet, by the long narrow slip of the river bank, "from Hewnden mouthe eastward is now p'cell of Warkworth Parke and enclosed within the same by a certeyne composition made betwixt the late nowe Earle Henry Percy, grandfather to my Lord that now ys and one Thomas Watkyns." Evidently Earl Henry (1489-1527) had desired to run the pale along the top of the bank, so as to include both sides of the river within his park: the land given in exchange is not described.

In the Northumberland Muster Roll taken by the Constable of Alnwick in 1538,² Nether Bouston has one man George Waube "able with horse and harnes" and "thirty able men *wanting* horse and harnes"—their names are given, and include Wm. Johnson, Wm. Wylkinson, Thomas Wylkinson, etc.

In Lord Wharton's Orders of the Marches in 1553, the Watch is to be kept from Hitchcroft to Rugley "to be watched nightly with ten men of the inhabitants of Whyttell, Shelbottell, Bylton, Over-Boston, Wodden, Nether-Boston-Grange, and Berling."³

The Wark Court Rolls record that in 1560, Robert Watson "payeth 7s. free rent in Buston, and Wm. Beadnel payeth 18s. 8d., and that in 1560 (or 1570) Robert Watson holds lands in Buston on the $\frac{1}{4}$ th part of a Knight's fee, and on the 200th part of the same, which is 13s. 1d., and yearly payeth Castle ward:" and

¹ Spearman's Notes per Mr R. Bolam.

² Arch. Æl., vol. IV., p. 163.

³ Nicolson's Border Laws, p. 197.

further that in 1560 (or 1570) "William Beadnell holds his lands in Buston on an $\frac{1}{8}$ th part of a Knight's fee, and on the 200th part of the same which is 13s. 1d., and yearly payeth Castle ward."

In 1586, among other towns "spoyled by the Scots in time of Peace were Buston and Grange."¹

In 1590, at an inquisition taken at Old Bewick, the Jury say that at his death, "Thomas Gray, Knight, was seized in his demesne as of fee tail. . . . of several Baronies . . . of certain lands and tenements in Nether Buston in the fee of Wm. Beidnell gentleman, or of his feofees and certain other lands and tenements there in the fee of Thomas Wilkinson or of his feofees."²

It will now be convenient to gather the numerous small holdings around the three families who gradually absorbed them, *i.e.* Johnson, Forster, and Bell.

JOHNSTON'S ESTATE, of some 92 acres, rated as containing $1\frac{1}{2}$ farm.

In 1560 and 1590 we find William Beadnel owning at least half of the township. He was also a copyholder in High Buston and of a family which at this period made large purchases of land in this northern half of the county. In 1531 George Beadnel of Newcastle obtained a 90 years lease from Roger Abbot of Alnwick Abbey, of the Wooden Corn Tithes, at a rent of £1 13s. 4d., also the Shielddyke Tithes;³ and Clarkson, in 1567, says that Barnhill, lately belonging to Brainshaugh, had been purchased of the Abbot of the dissolved house of Alnwick, by George Beadnell of Newcastle, merchant, and was then the inheritance of his son Robert Beadnell.

By 1599 a portion of the Beadnell lands in Low Buston, perhaps 90 acres more or less, had come into the possession of Luke Bedenell of Alnwick, who demised his lands in Nether Buston, formerly in the possession of Wm. Johnson (whose name appears in the Muster Roll of 1538) and afterwards of John James

¹ Border Club, vol. I., p. 67.

² There exists at Durham the will of Thos. Wilkeson of Nether Buston dated 1587, proved 1588. In it he desires to be buried within the parish church of Warkworth: he gives to his wife Agnes one third part of his goods: to his *second* son Robert Wilkeson the interest and tenant right of his farmhold: to his *eldest* son William Wilkeson one cow and a boule of malt: to his daughter Dorothy Wilkeson five sheepe, and mentions his third son George, and fourth son Thomas.

Tate's Alnwick, vol. II., p. 27.

to Henry Johnson for 31 years, at the rent of 20s. 1d. In 1601 Luke Bedenell and Maria his wife, sell their estate to the same Henry Johnson, who in 1614 obtained a confirmation from Maria Bedenell, widow, and Wm. Bedenell the son and heir at law.¹

Johnson immediately built himself a house which is yet standing—of two stories—whose walls, 3 feet in thickness, still carry a lettered stone—H. JOHNSON, 160..

In 1641, Henry Johnson purchased from Wm. Orde of Prudhoe Castle, and of Sturton Grange, for five pounds, sundry parcels of ground on Nether Buston—some of the small detached pieces long before given to Newminster Abbey, probably that given by Margery, daughter of Robert of Butleston.² In 1663 the rental of Henry Johnson's part of Nether Buston was £15.³ In 1684, Henry Johnson, likely a son of the first Henry Johnson, made his will, bequeathing his land to his wife Jane,⁴ for her life, then among his children—three daughters, of whom Mary the eldest was wife to Richard Musgrave, Vicar of Longhoughton (1679-1697);⁵ Sarah, the second daughter, married Arthur Strother⁶ of Bilton Banks; and the third, Margaret married Wm. Musgrave,⁷ a physician in Newcastle. The three co-heiresses and their husbands, in 1691, made an agreement to divide their land in Nether Buston. (*Low Buston Deeds.*) In 1707, Richard and Mary Musgrave's son Richard of Newcastle, clerk (with Susannah his wife) disposed of his portion to his uncle, Wm. Musgrave, who in 1725, by will, left both portions to his son William Musgrave, together with the reversion of the other third which had been left him by his nephew Henry Strother of Bilton Banks, subject to the life interest of Frances, widow of Henry Strother, then wife to Edward Forster of Higham Dykes.⁸ In 1726, William Musgrave, then of London,⁹ sold for £1600 all his

¹ The Rev. John Hodgson's Collection.

² Ist. Buston Charter.—*Newminster Chartulary.*

³ Henry Johnson of Low Buston, buried at Warkworth, 1684.

⁴ Jane Johnson of Low Buston, buried at Warkworth, 1685.

⁵ 1699.—Maria Musgrave of Low Buston, buried at Warkworth—*Registers.*

⁶ 1708.—Arthur Strother of Bilton Banks, buried at Lesbury; 1718.—Henry Strother of Bilton Banks, buried at Lesbury—*Tablet Lesbury Chur.*

⁷ Wm. Musgrave, physician, buried in St. Nicholas, Newcastle, 1725.—*Welford.*

⁸ Edward Forster of Morpeth Grange House, voted for Higham Dykes, 1722.—*Poll Book.*

⁹ In 1758, Collingwood Forster of Alnwick, administrator of Wm. Musgrave, Low Buston, deceased.—*Low Buston Deeds.*

lands in Nether Buston, formerly belonging to his grandfather, Henry Johnson (including the reversion of Strother's third) to William Wilkinson of Upper Buston. The premises included Pasture ground called the "Ten Pound Close," also "Joseph's Close."

The Wilkinsons were old established tenants or copyholders in High Buston township: but as their freehold lay in this township, their history may be given here. At the Knights' Court held at Alnwick Castle in 1638, John Wilkinson of Over Buston was fined 6s. 8d. for two fold bursts.¹ In 1694, John Wilkinson of High Buston was married at Warkworth Church, to Mary Tayte of Newton-on-the-Moor: their eldest son William, baptised the same year, was the purchaser of Johnson's land in Low Buston: he married in 1732, Mary, daughter of Michael Pemberton of Bainbridge Holme, county Durham, sister to Mrs Richard Carr of West Ditchburn, and Mrs Michael Coulter of Lesbury.²

William Wilkinson's will, proved in 1772 (*Low Buston Papers*) mentions his son Henry, and his daughters Mary and Bridget; he leaves £30 a year to his widow, with a specific legacy, and his land at Low Buston and houses at Warkworth, to his eldest son William Wilkinson; the latter in 1779 married Isabella Robinson of Stannington,³ by whom he had two sons, John and Henry. He was buried at Warkworth in 1821, aged 84. By his will, dated 1815, he left his freehold and leasehold property to his son John Wilkinson, who in 1832 sold his estate in Low Buston, to his brother Henry Wilkinson, a corn factor in Alnmouth, whose wife was... Forster, sister to Wm. Baird of Windy Edge, Alnwick. In 1838, John Wilkinson sold it to John Appleby of Low Buston.

In 1728, Wm. Wilkinson borrowed £1500 on mortgage, from Wm. Gallon of Alnwick, skinner and glover. In 1758, the mortgage was held by Samuel Shield of Newcastle, and afterwards by Katherine Shield—one of the three daughters and co-heiresses.⁴

¹ Tate's Alnwick, vol. i., p. 351.

² Burke Landed Gentry—Pemberton of Bainbridge Holm.

³ *Stannington Registers*.

⁴ In 1770, she married Wm. Hargrave of Morpeth, afterwards of Shawdon.—*Low Buston Papers*.

BELL'S ESTATE of 287 acres, estimated as $4\frac{1}{3}$ farms.

The family of Bell of Shortridge was possessed of an estate made up of at least four small holdings, which together formed a narrow strip about a mile in length and of varying width.

They were Middle Buston, Shortridge, Spittal-house, and a holding called Joseph's Close, which has not been identified, though a field bearing that designation was included in a Low Buston conveyance of 1726, of Musgrave to Wilkinson.

The Spittal-house, a singularly shaped piece of ground, somewhat resembles the ankle and foot with the tread on the foreshore of about half a mile. It was rated as "1 farm" and might consist of some 60 acres, including links. It would include the land given by Hugh, the son of Gregory of Butlesden, to the Canons of Alnwick, and probably the two acres given by Henry, son of Hugh, to Newminster, viz: the acre called Heyrigidacre, near the Birling field, and the acre near the Salters' lech; also the acre called Saltrig, given by Edmund, the son of Edmund. The runner of water bears the name of the Salters' lech, to this day. How these parcels passed from the possession of Newminster Abbey has not been discovered; possibly by exchange. In the Ministers' accounts, in 1540, we find that Alnwick Abbey owned in Buston, one tenement, valued at 4s.¹

Clarkson includes the Spittell in his survey of the Warkworth Barony, in 1567. He describes two holdings, one held by Roger Clay for three lives by a lease made by the late "Earle Henry.....the rente whereof to be yerely payd to the late dissolved Monasterye of Hulne, which lease was given and surrendered into the hands of the said Commissioners to my Lord's use. And then they did demyse the same tenement to the said Roger Claye and his two sons, in the maner and forme above specified..at the yearly rent of 15s. 1d." The meaning is not very clear, but we see that Hulne Abbey and the Earl of Northumberland, each had a property in it. The terms of the other holding have been translated by Dr. Hardy, as follows:—"Gabriel Ogle holds there a Place (? a mansion), with barns and other building, and a croft with a garden containing one acre; also a certain parcel of arable land, meadow and pasture, to wit, in Le Strother in Nether Buston field a parcel of arable land containing a half acre, a piece of pasture there containing $1\frac{1}{2}$ acres, with $\frac{1}{2}$ rood of meadow there, one parcel of land called

¹ Tate, vol. II., p. 27.

Spittle Flatt, containing by estimate, 4 acres, one other parcel of arable land abutting upon the place called Byrling Brade Havers, on the western side, containing 2 acres; a parcel of pasture on the east of the house, containing $4\frac{1}{2}$ acres, a parcel of arable land called Dunstayne containing 7 acres, and one other parcel of arable land called Salterburne Flatt, containing $8\frac{1}{2}$ acres, with common pasture and pays to the Lord yearly 15s. 1d."

In 1663, in the Book of Rates, Sir Wm. Forster of Bamborough, is returned as proprietor; the county rate being 1s. 3d. He would be grandfather to Dorothy Forster, Mr Besant's heroine. After this it was acquired by the Bells of Shortridge.

In 1741, Thomas Bell was elected churchwarden for Warkworth Parish North Side, his qualification being Spittle-house;¹ and in 1748, Thomas Bell of Shortridge voted for a freehold at Spittle-house. Until 1794, when mentioned in the church books, it appears to have been regarded either as a separate township, or perhaps as a definite part in a joint township with Low Buston. It was rated as containing "1 farm." Buildings and cottages remained until the end of the 18th century. There is room for doubt whether the later holding covered all the premises described by Clarkson, in 1567, or whether the Percy portion was not laid into the adjoining township of Birling. An old rent charge of 20s. for the poor of Warkworth, formerly paid, has long been lost. In 1758, Thomas Bell sold to Hugh, Earl of Northumberland (the 1st Duke) all his fishing rights adjoining upon and belonging to his lands of Warkworth Spittle.

Of the long extinct holding of Middle Buston or Middle Stead, very little is known. The building stood in a field still called the Stead-field, midway between the hamlets of High and Low Buston—footpaths from the north and south and east approach the spot—that from the east being incomprehensible without the knowledge of the existence of the old farm-stead. A few scattered notices in the Register books of last century tell us of burials—probably those of hinds; but it is recorded that in 1757 it was the turn for Low Buston and Middle Buston to provide a churchwarden. Shortridge, the centre around which the smaller holdings have gathered, and by which name they are now known—had a separate existence before the reign of Queen Elizabeth. Clarkson in 1567 speaks of Shetteridge—very much the present

¹ *Warkworth Church Books.*

local pronunciation. It would seem to have been acquired early in the 17th century by the family of Bell—then of some local position, but for 60 years extinct in the male line. In 1638, in the list of freeholders in Northumberland, we have John Bell of Buston, gentleman; and in 1663 Edward Bell is returned as the proprietor of lands of a rental of £10; and in 1680, Phillis, wife of Thomas Bell of Shortrigg, was buried at Warkworth. A family of the same name, in 1682, resided at the neighbouring estate of Wooden,¹ and in 1725 is the curious entry in the church books, “Holy Bread money left off at Mr Edward Bell’s of Shortridge.” In 1719, Edward Bell owned a pew in Warkworth Church.²

Members of the Bell family bearing alternately the names of Edward and Thomas, appear regularly in the Parish Records of last century. In 1748, Edward Bell of Shortrigg voted for his freehold there. In 1752, Edward Bell of Shortridge was buried in Warkworth Church, and the wardens received 3s. for his “Lairstone.” We also find the following burials entered:—1768, Thomas Bell, senr. of Shortridge,³ and 1773, Thomas Bell of Shortridge.⁴ The latter married Dorothy,⁵ fifth daughter of Thomas and Frances Smith of Togston, and had a son and daughter who grew up and married. The latter, Margaret, married John Tate of Guyzance North Field (now called Bank House) and was buried in Brainshaugh Chapel-yard in 1792.⁶ The son Thomas Bell, was a solicitor in Alnwick; his marriage settlement made in 1805,⁷ conveyed Shortridge to William Smith of Togston, in trust (after paying an annuity to his mother) to secure his wife’s portion of £2500. She was daughter to George

¹ Tate, vol. II., p. 160.

² *Warkworth Church Book.*

³ Will of Thomas Bell of Shortridge, dated and proved 1768, mentions his (? 2nd) wife Phillis, his son Edward, then under age, his daughters Margaret and Barbara, his brother Edward Bell of Alnwick, merchant, and his eldest son and heir, Thomas Bell.

⁴ Will of Thomas Bell of Shortridge, dated and proved 1773, mentions his wife Dorothy, and son Thomas, his brother Edward, and uncle Edward Bell of Alnwick, merchant. He mentions his freehold messuage or close at Alnwick, and his freehold estate at Shortridge, Spittal, and Nether Buston.

⁵ Died at Alnwick, 1826, Dorothy, relict of the late Thomas Bell of Shortridge.—*Newcastle Magazine.*

⁶ *Shilbottle Register.*

⁷ Papers with Mr Wm. Woodman, Morpeth.

Selby of Beal and Twizel, by his marriage with Margaret Cook of Eastfield. She, after Bell's¹ death, married Wm. Clark of Belford Hall, but had no issue to either marriage.

As early as 1784 we find Ralph Fenwick² as tenant of Shortridge: and before 1810 he purchased it of his nephew, Thomas Bell.

The history of the Fenwick family belongs to Ulgham; space will allow but a very brief summary to be given here. They were settled at Ulgham Grange in the time of James I. In 1645, Edward Grey of Cowpen demised Ulgham Grange to "my brothers Roger Fenwick and Ralph Fenwick;" two of their brothers, tanners in Morpeth, being sureties for the rent. Edward Grey died in 1653: he was son of Philip Grey of Howick, by his wife Margaret Weetwood. From this Edward Grey is descended the present Earl Grey, and Ralph Fenwick of Shortridge was great grandson of the Ralph of 1645. Born about 1737, leaving his elder brother Francis at the ancestral Ulgham, he farmed at Embleton and Chevington, and had prospered: his wife was Margaret, sixth daughter of Thomas and Frances Smith of Togston, but they had no children. There resided with them at Shortridge, Mrs. Fenwick's mother and two sisters. Mrs. Smith died there in 1805, and Miss Elizabeth Smith having had her leg broken by a carriage accident, also died at Shortridge.

Ralph Fenwick died about 1826, and was succeeded by his nephew and heir at law, Ralph Fenwick of Ulgham, who died in 1849, when Shortridge with Spittal-house, etc., was sold to Edward Thew of Alnwick for £12,600.

The estate, then described as land of the most fertile quality, 60 acres in rich deep Ox Pasture, was sold subject to the annual payments of £2 13s. 8d. for Land Tax, of £21 16s. 8d. Vicarial Tithe and £30 4s. 11d. for Rectorial Tithe, also 2s. 6d. to Lord Tankerville of Wark. The purchaser, Edward Thew, of an old family of Alnwick freemen, and one of her most

¹ In 1813, Thomas Bell of Alnwick agreed to purchase of Ralph Annett of Heckley Fence, a house in St. Michael's Lane, Alnwick, in 1819 the purchase was completed. Thomas Bell, by his will dated 18th January 1826, bequeathed this house to his wife Margaret Bell for her life, as a residence. Executors to will—J. P. Selby, George Selby, and Margaret Bell. Papers with Mr Robert Middlemas, Alnwick.

² 1784. Ralph Fenwick, Churchwarden, North Side.—*Warkworth Church Book.*

successful sons, afterwards acquired Buston Barns and greatly improved his property by high farming.

He enlarged and improved the old mansion of the Bells, planted the ornamental timber, and laid out the gardens and pleasure grounds.

Dying in 1873, he was succeeded by his eldest son, Fred. A. Thew, who died in early manhood, and by whose trustees both estates have recently been sold.

FORSTER'S ESTATE of 490 acres, estimated 7 farms.

The MS. pedigrees of the Forster family say that lands in Nether Buston were purchased by Florence Forster, youngest son of Thomas Forster of Adderston, who died about 1589, and whose will dated 1587 has been printed by the Surtees' Society. Unfortunately this will makes no mention of Florence Forster, who is further stated to have married his cousin Jane, daughter of Cuthbert Forster of Brunton, by whom he had at least two sons, Francis his heir and Lawrence Forster of Amble. Be this as it may, there is evidence that about 1607 Low Buston was acquired by a cadet branch of the widely spread Northumbrian house of Forster.

In 1638, Francis Forster of Buston, gentleman,¹ was a freeholder in the county, and in 1663 Francis Forster possessed lands in Low Buston to the value of £30 per annum. His will dated 26th March 1677,² deals with his personal property which he leaves to his son George, and refers to a settlement of his estate under which his eldest son Francis was to pay a portion of £200 each to the younger sons, George and Robert. He makes no

¹ *Arch. Æl.*, vol. II., p. 325.

² 1677, 26th March. Will of Francis Forster, senior, of Nether Buston: "My Body to be decently buried in the parish church of Warkworth; my son Francis Forster of Nether Buston; my son Robert Forster, deceased; to my loving son George Forster of Nether Buston, all my personal estate whatsoever, and 'all my stock and cropp with all my leases by which I hold my lands and Tenements.' Attached is an 'Inventorie,' of goods and chattels taken by Robt. Davison, Wm. Milbourne, T. Bell, 2nd March 1677 $\frac{1}{2}$. His purse and apparel, £5 0 0; Five Oxen, £20 0 0; Six Kine and three calves, £9 0 0; Five young Beasts, £5 13 4; Sixty Eight Ewes, £22 13 4; Thirteene Wedders, £4 1 0; Thirteene Dinmonds, £3 18 0; Twenty Hogges, £4 0 0; Oats in the Barne and Stackgarth, £7 10 0; Bigg in the Stackgarth, £1 10 0; Ry sown on the ground, £0 15 0; Two horses £2 10 0; Implements of Husbandry, £2 0 0; Suma Total, £88 10 8."

mention of his wife, though the pedigree above quoted says his second wife, Sarah Bell of Wooden, survived him.¹ Probably the sons had married and either resided in the mansion or in adjoining houses, as in the Burial Registers there are between 1676 and 1690, at least six Low Buston Forsters buried at Warkworth.²

Francis Forster, the eldest son, succeeded his father; his wife was Grace Forster of Newham (MS. pedigree); he was also owner of a $\frac{1}{8}$ th part of Hazelrigg, and to him, in 1682, his brother-in-law, John Forster of London, left by will his ground at Roughlees near Hartburn.³ Francis Forster in 1702 charged his estate with £50 a year in favour of Catherine Dalston, the wife of his eldest son Joseph,⁴ her marriage portion being £500. (*Low Buston Muniments.*) She was daughter of Christopher Dalston of Akron Bank, Westmoreland. The estate was entailed on the issue of the marriage; but excluded from the trust premises were the dwelling house at Low Buston, 'late in the possession of James Beach, with the parcel of ground called Maddy Rigg and the parcel called Mill-house Rigg.' In 1712 there was a charge of £400 as a marriage portion for his daughter Grace, who was that year married to Andrew Ker of Sandy Know in Tiviotdale (sic). This was not paid off until 1759, when £200 was paid to Isabella, wife of George Davison of Ewart, husbandman, and £200 to the creditors of Andrew Forster Ker of Berwick, merchant, the daughter and son of Andrew and Grace Ker.

Francis Forster had already in 1699 borrowed on mortgage; the deed describes the premises as comprising the capital messuage and

¹ At the Alnwick Assizes in 1682, Mrs Margaret Bell and her son Mr Samuel Bell of Wooden, were presented to be dissenters—so reputed; likewise Mrs Sarah Forster of Low Buston and Jane Johnson of the same place.—Tate, vol. II., p. 160. 1682.—Sarah Forster of Low Buston buried at Warkworth.—*Registers.*

² 1679.—Jane, daughter of Francis Forster of Low Buston was buried in Woollen, according to the statute.—*Warkworth Registers.*

³ Hodgson, part II., vol. I., p. 322.

⁴ "Joseph Forster of Buston was only prevented from joining 'his cousin of Bambrough' (in the 1715 rebellion) by his wife's throwing the contents of a silver kettle over him and scalding his legs."

Longstaffe's Darlington, Chaytor Pedigree.

Joseph Forster of the High Buston family is also claimed as the hero of this anecdote: in 1715, he would be about 23 years of age, but probably he did not marry Mary Compton of Gainslaw until two or three years later.

burgage in Low Buston, commonly called the "Stane House" and the farmholds containing by estimation 7 farms; Hounden Mill, the cottage called Atkinson's House, the close called Byars' Close, the two Yard side rigs adjoining the north side of the park at Warkworth, the ten rigs lying east of Hounden Crag and the rake, pasture, and common of pasture, for 20 sheep and 1 nagg within the common of Nether Buston.

From this description we may conclude that the smaller parcels described had not been of the original purchase, but pieces apparently near Hounden acquired from time to time. Also that a portion—a very small portion—of the common pasture yet remained undivided. This is the only definite notice which has been met with, and the position of the ground referred to is uncertain, but a field between the N.E. Railway and Birling township is still called the 'Long Moor.'

The mortgage was increased in 1711, when mention is made of the "dwelling house and appurtenances lately erected at Buston Barns."

In 1719, Francis Forster owned in respect of his Low Buston property, two large pews and portions of two others in Warkworth Church. In January 1720, he made a further settlement of Low Buston, in which he mentions the messuage known as the West Field (a detached portion beyond Johnson's land) the East Barns, "my part of Shortridge," the Low Moor and the rift above it, and Byers' Close lying on the west of Shortridge Bridge. His trustees were Thomas Burrell of Broom Park, John Davison of Warkworth Barns, Edward Valentine of Wooden, and William Righ of Low Buston, yeoman. His Rough-lees property had evidently been by another deed settled on his second son Nicholas, and probably also the land he had bought in Morwick from Errington in 1690.¹ (*Morwick Deeds.*)

¹ 1707.—Nicholas Forster of Buston mar. Frances, dau. of Ralph Brandling of Hoppen, and in 1717 he married at Warkworth Hanna Harrison of Newcastle.

1724, June 14.—Will of Nicholas Forster of Ponteland appoints 'my friend John Forster of London, merchant, Francis Brandling of Bilton Banks, gent., John Davison of Warkworth Barns, gent., and the Rev. Henry Bryne, vicar of Ponteland, as Trustees: mentions his sons Francis and Ralph, and daughter Dorothy, and wife Hannah: bequeaths freehold at Ritton Whitehouse, Roughlees, Alnmouth, Morwick, and Hesleyhurst, and (leases ? of) tithes at Ponteland and Embleton.

Francis Forster was buried at Warkworth in March 1720,¹ and was succeeded by his eldest surviving son Joseph, whose marriage settlement in 1702 we have noticed. He only lived until 1728, but had in 1727 made a re-settlement of the estate in which his eldest son Francis joined. £500 was charged on the estate as a marriage portion for his daughter Grace, who married William Cresswell of Red-house, now called Woodhorn Demesne, and £490 as the portion of his younger son Joseph. The premises are described as including the closes called the Orchard Hill, the Bought Riggs from Hilly Law Gate to "Hounden upper damns above Kideford," etc., etc.

The eldest son, Francis Forster, in 1738 described as of Morpeth was, in 1731, married at Gateshead to Frances, sister and co-heiress of Charles Bathurst of Skutterskelf and Clints M.P. for Richmond. The history of the Bathurst family is given in Mr. Raine's exhaustive account of Marske.²

In 1762, Francis Forster executed an important settlement, in which he entailed Low Buston on his eldest son Charles Francis and his heirs, and failing them on his third son William, with remainder to others. The effect of this settlement was to disinherit the second son Joseph and his issue.

Francis Forster³ died in 1778, aged 76, and was succeeded by

¹ 1720, 10th Feb.—Will of Francis Forster of Nether Buston; bequeaths to the daughters of Robert Forster of Hartlaw (who had married his daughter Katherine) £100 to be paid in five yearly payments of £20 each: to Andrew Forster Kerr, 'son of my daughter Grace Ker,' £50 when he shall attain the age of *twelve* years: to the children of Wm. Reighe £35 to be paid in seven yearly payments of £5 each: all my pewter and brass plate, household goods, and furniture between my son Nicholas Forster of Ponteland, and my daughter Grace Kerr. Executors—John Davison of Warkworth Barns, gent., Edward Valentine of Wooden, gent., and Wm. Reighe of Low Buston, gent.

1678—Thomas, son of Thomas Righ of Low Buston, buried in Woollen.—*Warkworth Burial Register*.

In a deed relating to Heslerigg, another estate of this same Francis Forster, Righ is described in August 1722 as William Rigue of Oversheelds. In the 1747 poll book, we find William Reigh of Alemouth voted for houses and lands there: and in 1753, Margaret, widow of William Righ, has letters of administration granted to her husband's estate—*Low Buston Deeds*.

² *Arch. Æl.*, vol. v., p. 75.

³ For an interesting letter of the date Oct. 1745 addressed to Francis Forster by Wm. Carr of Eshot begging for coffee "as the Marshall designs to honour me with his company," and naming the march past of the army. see *Arch. Æl.*, 1862.

his eldest son Charles Francis Forster, born about 1732. Previous to his father's death he had resided at Felton Peth, and at an estate he had purchased near Harbottle, now called Campville. He took a prominent part in the election of 1774, and voted for an annuity out of Low Buston: his character and exploits were satirised in a somewhat libellous lampoon. Commonly known as 'General' Forster, a *sobriquet* gained by giving that as his name on arrival at the closed gates of Berwick late of an evening, and hailing the porter for admittance; this able but eccentric man has left evidences of his taste as well as traditions of other characteristics. He was LL.B., C.C.C. Oxon., and Deputy Lieutenant, and J.P. for Northumberland. He was a successful collector of Roman Altars and Antiquities, as has already been shown in *Proceedings*, 1887, p. 47.

Up to this period the hamlet or town of Low Buston was a wide street, from east to west, with buildings and gardens on either side. The mansion faced the road which ran immediately past its north front. C. F. Forster seems to have formed a new public road to the north, to have thrown the old one into the gardens and pasture, and removed the old scattered cottages or else allowed them to fall. About the same time—certainly after 1779—he would plant the fine horse chestnuts and the sheltering plantations.¹ He died in March 1807, without having been married, but by his will, made in 1801, he bequeathed his personal and the unentailed real property to his two natural but acknowledged children, Augustus Cæsar Forster, R.N., of Campville, and Julia Cæsar, wife of William Storey Forster of Thropton. Low Buston, as settled in 1762, passed to Francis Forster of Margate, eldest son of William Forster, named in that deed. In June 1807, he and his eldest son joined in breaking the entail, and in 1818 the estate was sold to Nicholas Appleby of Eastfield, and John Appleby of Alnmouth, who divided equally between them, the former taking Buston Barns, Hounden Mill, and 275 acres; and the latter, the Mansion and 215 acres.

The Applebys were old Acklington copyholders and tenants on the Percy estates. Cavilhead had been farmed by them for several generations, up to 1785, when it was relinquished by Robert Appleby. John Appleby, the purchaser of Low Buston, was Robert's eldest son by his wife Isabella Potts of Thirston. By industry and integrity he acquired a considerable fortune in

¹ Low Buston Plans of 1779.

trade as a corn factor in Alnmouth, and had purchased property there, at North Sunderland, and at Longhoughton. In 1817, partly by bequest and partly by purchase, he acquired lands at Tritlington, purchased in 1784 by his maternal uncle Thomas Potts, when the Threlkeld property there was sold. In 1817, he married his kinswoman Ann, second daughter of Richard Hodgson of Cowpen and Bedlington. In 1829, in recognition of the fact of his fortune having been made in Alnmouth, he built a school-house, which, with 7 cottages as an endowment, he vested in trustees by a deed enrolled in Chancery in 1830, for educating poor children in Alnmouth, and for the use as a meeting-house "for the people called Methodists." In 1838 he purchased Wilkinson's lands at Low Buston which lay much intermixed with his own, and died the same year, aged 70, leaving his Low Buston property to his widow, who enjoyed it until her death in 1879, at the age of 88, when it passed to her sister, the present owner, Miss Catherine Hodgson.

In the field in which the old village stood, were three or four roods of land unenclosed, which did not belong to the main estate. From a plan of 1779, the tenement evidently consisted of a house facing the village street, and a garden sloping down to the brook: how it escaped the settlement of 1762, unless purchased subsequently, cannot now be unravelled, but in 1807 it passed under the will of C. F. Forster, and was inherited ultimately by his great nephew the present Major Thompson of Walworth, from whom it was in 1867 purchased by Mrs. Appleby.

Apart from the beauty of its sheltered situation (which gives it its name of Buston Vale) there is nothing very noteworthy about the mansion. The oldest portion probably built by the Forsters on acquiring the property with thick walls and low rooms, was pulled down and rebuilt by Mr Appleby about 1820, the oldest portion left can scarcely have been built before 1700. A still later portion—perhaps erected about 1780—contains a somewhat fine stair-case of timber, said to have been constructed by a skilled carpenter of the junior branch of the Buston family.¹

We shall have to fall back to 1818 to pick up the other Forster moiety. The purchaser, Nicholas Appleby, as has been shown in a former paper, was already owner of Sturton Grange, Eastfield, and Earsdon Hill. He died in 1828, unmarried,

¹In 1777 Thomas Buston, joiner, Buston, voted as freeman of Newcastle.—*Newcastle Poll Book.*

intestate, and was succeeded by his sister Margaret Appleby, who dying in 1830, by will left Buston Barns to her maternal kinsman Gradon of Whitburn and Sunderland, county Durham, with remainder to his sister and her issue. She married Richard Spoor of Whitburn, J.P., county Durham, sometime a draper in Sunderland.¹ Some touching lines on the death of his wife, who died in 1840, appeared in the *Sunderland Times*, 12th June 1840. Her son, Nicholas Appleby Spoor, an officer in the 6th Regiment, in 185 . . . sold his estate to Mr Edward Thew of Shortridge.

The part of the township called Hounden is included in this portion. It comprised a water-mill and some 60 acres of land. There is no record of the building of the mill—but it was in existence in 1663, when it was mentioned in the Book of Rates as owned by Mr Forster of Buston—‘Hounden Mill, otherwise Hounden Walk Milne.’ The stream at this period of its course, called the Hounden Burn, runs through a deep oak-clad dene, and at its lower end joins the Coquet. Half-way down is a precipitous freestone crag holed with jackdaws’ nests. Above it are the closes now or formerly bearing the picturesque names of the Abbot’s Wood, Hunters’ Thorn, the Yardside² Close, and Hounden Flower: the first is doubtless one of the parcels spoken of in the 2nd Newminster Charter, as being near the great road going towards the north, and near the land of Hugh of Brotherwyk; the second possibly owes its name to that John Hunter of Hounden, who in 1690 was married at Warkworth to Jane Todd of High Buston. In 1720, a sum of 20s. a year was charged on Hounden, to be paid to the churchwarden of Warkworth, and the churchwarden of Warkworth North Side, for the poor. This has long been lost.³

Possibly once a fulling mill, Hounden was worked as a Corn Mill until 1862, when on the night of the 19th March it was burnt, and never repaired for the purpose of a mill, though the shell stands almost buried in thick foliage.

¹ In Richardson’s Table Book, Mr Spoor is mentioned as chairman at the dejeuner at Tynemouth 18th July 1839, on the occasion of the opening of the Newcastle and North Shields Railway.

² Is Yardside a corruption of ‘Yare’ side? Tate says Yare or wear ‘an erection from the bank of a river to the middle to catch fish.’—(Alnwick, vol. II., p. 26.)—This close was adjacent to the river Coquet.

³ Francis Forster’s Will, 1720.

In 186...Hounden was taken in exchange by the Duke of Northumberland for certain lands in Birling township, desired by Mr Thew on account of their close proximity to Shortridge.

Having thus traced the successive ownerships, some mention may be made of the Buston Urn, and of some place names.

In 1815, in one of the 'Hilly Law' fields (which are three in number) at a spot which has not been marked, two men in removing some stones for road mending, discovered underneath a large flat stone covering four others placed upright or on edge and another at the bottom. Within were human bones, and an urn or vase of moulded and baked clay filled with ashes. The cavity was 3 feet 6 inches long, 2 feet 2 inches wide, and 2 feet 3 inches deep. The urn is now in the Alnwick Castle Museum, being No. 6 in the catalogue, but there wrongly described as found near Warkworth in 1850: this being the date of its presentation by Mrs. Forster. "It is a thick heavy urn $5\frac{1}{2}$ inches high, 7 inches wide at top, and $2\frac{3}{4}$ inches at bottom. Some of the marks on it are made by a sharp pointed instrument, others by a twisted thong."

Tradition speaks of another burial place on the extreme west of the township near the Tylee burn, but no authentic account of its opening has been preserved.

The noteworthy place-names not already mentioned are:—

Coatwall's Close	The Rhone
Pindy Lands	Bought Rigs ¹
Ten o'clock Rigs	Long Crook
Hilly Law	Windy Edge
Hemp Hill	Kennel Hill

The history of Upper Buston Township must be reserved for another occasion.

¹ "Will ye gae to the ewe-buchts Marion,
And wear in the sheep wi' me?"

Scottish Song.—"The Ewe-Buchts Marion."

Notices of St. Leonard's Hospital, with an Account of an Ancient Mortar found near its site. By GEORGE SKELLY, Alnwick. Plate XII.

BEYOND the mere fact that this Hospital was founded by Eustace de Vesey, between 1193 and 1216, there is little known of its early history.*

We gather from the Chronicles of Alnwick Abbey, that Eustace de Vesey gave a portion of land to this Abbey, known as Quarrelflat (*i.e.* the Quarry Flat) in exchange for the land on which he founded the chapel of St. Leonard's for the soul of Malcolm, King of the Scots; and William the Lion, whose illegitimate daughter Eustace had married, gave to him the barony of Sprouston in Roxburghshire to found this chapel.

It is almost certain that the Chapel and Hospital were entirely supported by the De Vescies up to the time of the last lord of Alnwick of that name, who died in 1297. In 1376, Henry de Percy, first Earl of Northumberland, obtained from the king, on payment of a certain sum, a licence to annex the Chapel to Alnwick Abbey; and in consideration of this grant, the Abbot bound himself and his successors to "sustain, perform, and support the Alms, Buildings, Charities, Hospitals, and other works of piety, anciently ordained and established in the same Hospital." †

In a subsequent charter, the Abbot of the aforesaid Abbey agreed to pay annually the sum of five marks to the Earl's Chantry at Warkworth, but in time this payment was abolished.

In 1427, Henry de Percy, "Earl of Northumberland, and honour of Cockermouth," ‡ "caused to be celebrated in the Chapel of the Hospital, three masses weekly for ever for the souls of the founders, and to repair and maintain the Chapel." Then again in 1450, the aforesaid Earl, with the consent of his eldest son, Henry de Percy, released the Abbot and Convent of all claims he had on account of St. Leonard's Hospital, excepting only the spiritual services; and for this exemption, the Abbot consented to relinquish the right of presentation of a devout

* Tate's Hist. Alnwick, vol. II., p. 41.

† Rot. Pat. 50 Edward III., p. 1, m. 23.

‡ Longstaffe's Heraldry of the Percies,

and fitting person to the charge and revenues of the church of St. Dunstan, in the west of London.*

After the fourteenth century, the page of history becomes silent concerning the Chapel and Hospital of Eustace de Vescy; and it is not improbable that it would be about this time when the whole of the buildings would be allowed to become a ruin, and this conjecture is the more feasible, when we consider that no mention is made of it during the troubled times that preceded the Reformation.

For many years the precise site of the Chapel and Hospital was not known. In the early part of this century they are described as lying between the Abbey and Denwick; but in the summer of 1845, all doubt upon this point was set at rest. In this year the field, which had evidently been long laid down to grass, was torn out; and then was exposed a large quantity of loose stones, graves, ornaments, etc. There was also found under the turf, a fine ancient stone coffin, which contained the skeleton form of a man, but which suddenly crumbled into dust on being exposed to the air.

Judging from the foundations that have been exposed, it may safely be assumed that the whole of the buildings, which formed a sort of quadrangle, was not large. On the north side was the Chapel, and to the south of this was the Hospital; whilst the west part of the square was formed by a series of buildings, which would be devoted to the use of patients, domestics, etc. But perhaps the most notable of the discoveries was that of a well which lay on the north side of the Chapel, and which is undoubtedly "Malcolm's Well," and where, according to the Chronicles of the Abbey, the wounded Monarch endeavoured to quench his dying thirst.

The Chapel, although small, would contain a fair amount of good masonry, and this is fully borne out by the picturesque ruin which was erected out of the remains in 1854, at the expense of Algernon, Duke of Northumberland, and under the surveillance of Mr F. R. Wilson. This ancient structure only measured 37 feet in length. The length of nave was 22 feet, and the breadth 27 feet; whilst the length of the chancel was 15 feet, and the breadth 16 feet. At the west end of the Chapel was a small apartment, which would be used by the officiating

* Tate's Hist. of Aluwick, vol. II., p. 11.

priest, and which in all probability would not be older than the fourteenth century, when the functions of the Chapel were delegated to the Abbot of Alnwick Abbey. It is rather remarkable that we have so few remains of this particular class of dwellings in the north of England. For if we except the chamber that was formerly on the roof of the chancel of the parish church of Alnwick, and another on the north porch of the church of St. Lawrence at Warkworth;—these may be said to be the only instances of this class of architecture that we have in this diocese. There can be little doubt but that these chambers would be used by the clergy who ministered at the Altar within their own respective churches. At Durham there was ample provision made for this rite.*

All of the remains that have turned up may be regarded as late Norman. Conspicuous will be found the round arch, clustered columns, cushion-headed caps, etc. ; while the principal ornaments are zig-zag, or chevron, nail head, lozenge, etc.

The site of the Hospital was on the north side of the river Aln, and is distant from the town about two thirds of a mile. The building stood on a plot of ground that was, during last century, known as part of Radcliffe's Closes. This, together with some other fields on the opposite side of the present highway, were formerly owned by the Earls of Derwentwater. How they came into possession of this property is uncertain, but the family would probably acquire it by purchase shortly after the Dissolution. On the attainder of James, the last Earl in 1715, the Alnwick property, together with others, was granted to the Commissioners of Greenwich Hospital. By an Act of Parliament passed in the year 1778, the Duke of Northumberland effected an exchange with the Commissioners.

We gather from the subjoined memorandum, that the Commissioners consented to hand over to the Duke the following properties, viz :—

“ Derwentwater House, which stood at the top of the Path, on the opposite side of the entrance to the Castle Gate ; Radcliffe's two Closes in the north Demain, Alnwick ; also ground on the north side of the river above the bridge, called Barbara's Bank ; also ground called the Goose Close in Wideopen Demain, on the north Demain aforesaid ; also the corn and tithes of corn and of hay, with the stead fields of Broxfield, called Fire Fields, in the parish of Embleton ; also the tithes of hay in a Haugh,

* Sanderson's Hist. of the Ancient Church at Durham.

and in the Gin field at Gynfen meadow, both in the township of Denwick—the tithes aforesaid formerly belonged the Monastery of Alnwick—also a burgage and garth, and half an acre of land in the Hather leases at Warkworth, and in lieu of these they undertook to accept a part of the late Common fields of Corbridge, called East field, and containing 46a. 2r. 24p.” *

The present highway, from the Lion Bridge to the Monument on the top of the hill, is probably not older than the seventeenth century. The old road would lie a little further to the east of the Hospital, and this appears the more certain, inasmuch as a large portion of the fences have been got from the ruin. It is also probable that the whole of the North Demesne and adjacent lands were at that time open and unenclosed, hence we find in Radcliffe's Upper Close, several blue stones still standing, which have evidently served as landmarks.

A short time ago near one of the trees that stood on the east side of the road and opposite to the site of the Hospital, was discovered a very fine stone Mortar. It is very similar in design to one in the Museum of Alnwick Castle; but only of an earlier character. This interesting remain is eight inches high, and in diameter it measures fifteen inches. In design the vessel is round, relieved by a plain ornament that is made to branch off from the neck, and by this means divides the basin into four distinct sections.

A considerable amount of interest is attached to this ancient relic, inasmuch as the greater portion of our Norman remains in the north of England has either been lost or destroyed.

With the history of this Hospital is associated the building of Alnwick Abbey, and the church of Eustace Fitz-John. When the site was discovered in 1845, there were found amongst the debris, one or more vessels that would most probably have done duty in the chapel. One called a holy water vase† would in all likelihood be the piscina or stoup.

It is pleasing to note that as soon as Earl Percy was apprized of the discovery of the present relic, that he lost no time in advising the Duke of Northumberland to have it removed to his Museum at the Castle, where it now is. The drawing which accompanies this paper was executed by Mr John Brown of Alnwick Castle.

* C. S. Bell's MSS.

† Tate's Hist. Alnwick, vol. II., p. 42.

On Vessels found at West Thirston, Northumberland. By
GEORGE H. THOMPSON, Alnwick.

ABOUT the year 1884, the articles, which are figured in the annexed cuts, were found in ploughing up a field near West Thirston, a small village lying on the south side of the Coquet, opposite to Felton. The field had long ago been a bog, and it would be during that time that they had been deposited in it for safety, and never afterwards recovered.

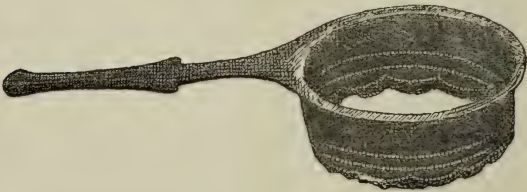


FIG. 1.

The smaller one (Fig. 1) measures six inches across the top, five and a quarter inches inside, and the handle seven inches. The upper row of holes runs at a distance of an inch from the rim, but is not continued for three inches behind the handle. The next two rows run quite round. The bottom is wanting; but where broken off, the inward curving of the metal shows that the depth would probably have been two and a half inches, or a little more.

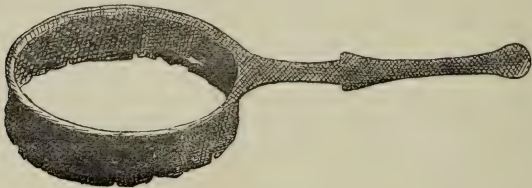


FIG. 2.

The larger one (Fig. 2) is six and a half inches outside, and six inches inside, with a handle eight inches in length. It has also probably been pierced, as there are four small round holes in the sides, similar to those in the smaller vessel, but at a distance of an inch and a half from their rim. The bottom of this is also lost; but the depth has probably been the same.

Both are formed of a yellowish kind of metal, resembling brass, but very hard. The handles, which are between a sixteenth and an eighth of an inch in thickness, only bend slightly with considerable pressure, and spring back again. There is no sign of brazing or any other kind of junction between the handle and the body, which has been formed by beating it out of the flat plate, of which the handle was the extension. The plate must have been beaten thinner, commencing at the outside, so as to leave as much metal as possible within the circle with which to form the body. The rim is thicker than the handle, and a narrow strip is so left all round to give strength. As the depth increases the metal gets thinner. The plate in each case will have been formed by casting in a mould, so as to get the larger amount of metal for making the body, which would be effected by alternately beating, and then softening it by heating where it appeared likely to crack, until the requisite depth was obtained. While the smaller one tapers slightly towards the bottom, the larger one slightly expands. In both, the material has been beaten out to a paper-like thinness, but remarkably smooth and even on the surface.

The smaller one, if not both, has evidently been a cooking utensil, such as are now called colanders.

Along with them a small bowl was found, formed of a darker coloured metal, of a reddish copper colour. It is five inches wide, and one and three quarter inches deep, with a slight indentation at the edge, for pouring out the liquid. There has been no handle to it. It too has been formed by percussion, but is not so carefully finished as the other articles.

Notes on Birds seen by JOHN BARRIE, JNR., Preston.

1889.

3rd March	GREY WAGTAILS first seen at Preston.
5th ,,	PIED ,, ,, ,,
9th April	CUCKOO first heard.
12th ,,	COMMON SANDPIPERS seen on Whiteadder.
14th ,,	SAND MARTINS ,, ,, Scaurs.
19th ,,	HOUSE MARTINS first seen.
30th ,,	REDSTARTS first seen.
1st May	SWIFTS AND SWALLOWS first seen.
1st ,,	WHEATEARS AND WHINCHATS.

GREAT SPOTTED WOODPECKER.—Numerous this season; one was shot at Duns Castle on 4th October 1889, and on 8th of same month a male was obtained in Buncle wood, and since that date other two have been observed in same plantation.

WOOD WARBLER.—A few visit the Retreat woods and Whiteadder banks about the beginning of May, where they breed.

SEDGE WARBLER.—Plentiful on the Whiteadder banks, arriving early in April.

GRASSHOPPER WARBLER.—A few of this species visit the young plantation between Hoardweel and Drakemyre moors, arriving early in June; one was obtained on 6th July 1888; and as several more were heard, there can be no doubt but they breed there.

MARSH 'TIT.—Very scarce on the Whiteadder banks; one was shot at Preston Bridge on 6th February 1889.

GREAT GREY SHRIKE.—A fine male specimen was shot on Cumledge estate in November last.

HEN HARRIER.—A young male was trapped on Drakemyre moor in January 1889.

COMMON WIGEON.—A few visit the Whiteadder during the winter months.

CROSSBILLS.—The COMMON CROSSBILL has been frequently observed this winter feeding on the surrounding Larches; a male specimen of the AMERICAN WHITE WINGED was shot in the Stanshiel covert on 19th December; it was in company with a female of the Common Crossbill.

SNIPES.—Plentiful in the marshes, JACK and COMMON.

KINGFISHER.—These birds are not often seen on the Whiteadder during the summer months, they are commoner in the autumn, as they come down the water on their way to Tweed side.

SISKINS.—Sometimes seen feeding on Alders at the water-side.

KESTREL AND SPARROW HAWKS are occasionally seen; they breed yearly in Buncle wood.

BULLFINCHES are very numerous this winter.

Return of Salmon, Grilse, and Sea Trout found dead and dying in the Tweed and its tributaries, taken out and buried 1880 to 1889.
 Drawn up and communicated by MAJOR-GENERAL SIR WILLIAM CROSSMAN, K.C.M.G., etc.

	Spawned Fish.			Not Spawned.		Totals for each year.	Grand Total of Fish for whole period.	Proportion per cent. Not Spawned in Total.	Proportion Mature Fish.	Approximate Weight in Lbs.	Remarks.	Estimated Number of Fish taken in Commercial Waters.
	M.	F.	Total	M.	F.	Total						
1879-80.												1879
Salmon -	1563	1420	2983	229	154	383	3366	10.11	100	64,500	* 171 Salmon found diseased in the River in Roxburghshire, taken out and buried by Fishermen, without any record being kept of sex or weight.	45,074
Grilse -	154	161	315	26	20	46	361		11			
Sea Trout -	628	768	1396	47	52	99	1495		44			
80-1-Salmon	823	1272	2095	58	102	160	2255		100			
Salmon not described }							* 171					1880
Grilse -	145	95	240	6	18	24	264	6.67	11	30,500		26,608
Sea Trout -	101	106	207	6	4	10	217		9			
81-2-Salmon	4484	4330	8714	1238	1318	2556	11,270		100	200,000		1881
Grilse -	992	537	1529	209	122	331	1860	21.8	17			63,385
Sea Trout -	609	556	1195	168	134	302	1497		13			
82-3-Salmon	1406	1813	3219	185	538	723	3942		100	52,000	N.B.—Included in the Totals are—	43,738
Grilse -	94	68	162	20	31	51	213	17.8	5		214 Salmon,	
Sea Trout -	266	349	615	53	37	90	705		18		29 Grilse,	1883
83-4-Salmon	3595	2137	5732	515	422	937	6669		100	110,000	259 Trout,	60,332
Grilse -	449	365	814	54	84	138	952	13.17	15		reported as not diseased.	
Sea Trout -	1016	1427	2443	155	134	289	2732		41			1884
84-5-Salmon	1083	1225	2308	70	113	183	2491		100	48,000		33,074
Grilse -	257	145	402	19	9	28	430	7.02	18			
Sea Trout -	319	279	598	13	27	40	638		25			1885
85-6-Salmon	2041	1371	3412	158	134	292	3704		100	77,500	Other Fish taken out dead from Fungus disease in the ten years—	56,437
Grilse -	606	360	966	33	21	54	1026	7.04	28		Smolts ... 30	
Sea Trout -	522	653	1175	34	41	75	1250		34		Yellow Trout 150	1887
86-7-Salmon	2625	4029	6654	239	388	627	7281		100	129,600	Grayling ... 27	say 62,000
Grilse -	653	331	984	32	29	61	1045	7.86	14		Eels, Perch, and } 12	1888
Sea Trout -	421	529	950	33	12	45	995		14		Pike ... 222	say 52,000
87-8-Salmon	2432	3014	5446	148	181	329	5775		100	102,000		
Grilse -	579	295	874	41	22	63	937	5.44	16			
Sea Trout -	403	648	1051	18	25	43	1094		19			
88-9-Salmon	2628	2820	5448	878	1172	2050	7498		100	110,200		
Grilse -	568	312	880	132	95	227	1107	23.95	15			
Sea Trout -	657	954	1611	101	119	220	1831		24			492,648
	32,119	32,299	64,418	4918	5558	10,476	75,065			924,300		

SUMMARY.

FISH TAKEN OUT OF THE RIVER TWEED AND ITS
TRIBUTARIES.

During the five years, 1880 to 1885	37,969
	Estimated Weight, 457,000 Lbs.
Do., 1885 to 1889	37,096
do.,	467,300 ,,

For the 10 years, 1880 to 1889 .. 75,065 do., 924,000 ,,
Or say, 412 tons weight of Fish; value at least, £50,000.

Of the above there were—

Male Fish..Spawned ..	32,119	
Do. ..Not Spawned	4918	
Total Male ..	37,037	
Female Fish..Spawned ..	32,299	} Exclusive of 171 Fish not described.
Do. ..Not Spawned	5558	
Total Female ..	37,857	

Spawned Fish ..	64,418	} Proportion of not spawned Fish to total—Lowest, 1881, 6·67 %; ; Highest, 1889, 24 %; Mean of 10 years, 14 per cent.
Not Spawned Fish	10,476	
Fish not described, 1881	171	
Total ..	75,065	

Description of Fish—

Salmon	54,422	} Being in the proportion of 23 Sea Trout and 15 Grilse to every 100 Salmon.
Grilse	8189	
Sea Trout ..	12,454	
Total ..	75,065	

At least as many more diseased Fish than those taken out must
probably have been carried down dead to the sea or
disappeared in deep water during the 10 years.

*Miscellanea.*SHORT SUN-FISH (*Orthogoriscus Mola*).

ON Friday, October 25th, 1889, a huge fish was seen driving before an E.N.E. gale towards the haven near the village of Craster, Northumberland. At about 8 a.m., it collided with the rocks; being stunned, the fishermen had little trouble in attaching a rope to its mouth, and with the assistance of many hands, soon hauled it on shore. It was taken to Alnwick for exhibition; and was ascertained to be a Short Sun-Fish (*Orthogoriscus Mola*). It is one of the largest on record on the East Coast; its dimensions being from nose to tail, 7 feet 9 inches, and 8 feet 6 inches from tip of dorsal to tip of anal fins, and weight, 70 stones (8½ cwt.)

J. J. HORSLEY, Nov. 9, 1889.

Another estimate makes it 7 feet in length, 8 feet from tip to tip of fins, weight 60 stones. It was afterwards conveyed to Newcastle for exhibition. For other Notes of the occurrence of the Sun-Fish on the East Coast, see Hist. Ber. Nat. Club (J. Hardy) vol. iv., p. 212, 1860. Sir Robert Sibbald calls it the "Molebut." Mr Howse in his "Catalogue of the Fishes of the Rivers and Coast of Northumberland and Durham, and the adjacent Sea," Newcastle, 1890, p. 50, refers to its having been observed "off Whitley, 1863—W. J. Forster. Cullercoats—Dr. Embleton, 1849. Redcar, 1882. Craster, October, 1889. Lincolnshire Coast, October, 1889." J.H.

THREE-BEARDED ROCK LING (*Motella tricirrata*).

I first gave notice of this as a fish of the Berwickshire coast, in the Hist. of the Club, vol. vii., p. 470, from an example obtained by the Cove fishermen in a crab-creel, on the coast between Siccar Point and Redhough. Another example was got by the same men, nearly on the same ground; April 24th, 1879. This was sent to London (Ib. viii., p. 532). Still more recently, another example from the same coast was sent to the Berwick Museum; but the true locality was not recorded, being attributed to Berwick. My attention was recently called to this fish, by a visit to the Fishery Experimental Station at Dunbar, May 6, 1890; where Dr. Beard had a very fine specimen preserved in spirits, quite agreeing with the one I had described in Hist. of Club, vol. vii., p. 470. In passing the house of a fisherman on my way to the Station, he showed me a small example, not ¾ of a foot long, that had come ashore in that morning's fishing. It had undefined brown mottling on it; the belly being greyer than the general tint. At the Experimental Station recently one had been sent from Berwick, and two from intermediate ground, the Cove being mentioned. The following notice appeared in the *Berwick Advertiser* of May 9, 1890.—

"While Mr George Manuel and crew, fishermen, Greenses, were lifting their crab-creels last week, about half a mile off Berwick, they found in one of them, an uncommonly rare specimen of a fish, the name of which was unknown to them. Mr Douall, fishery officer, having got possession of it,

he found it was the 'Three-Bearded Rock Ling' (*Motella tricirrata*). It measured 16 inches in length, and was of a beautiful dark bluish colour, with a number of variegated spots on either side, of about the size of a sixpence."

On a subsequent visit, in June, to the Dunbar Station, I found that the fishermen, owing to their being paid, were saving more examples.

It is probably the *Motella vulgaris* of Mr Howse's Catalogue, p. 34. He records a specimen caught off Tynemouth.

ACMÆA TESTUDINALIS.

Of this pretty and rather rare Limpet, I picked up, June 28, 1890, a fresh example of the shell on the sands at Druridge Bay, Northd.—J.H.

Notes by JOHN ANDERSON, Preston.

Sports of Water Shrews.—Besides the Common Shrew, I have only seen another kind, very dark with a white belly, which may be one of the water ones. I never saw any running about except one very wet day a great many years ago, when standing underneath a large beech on the side of a ditch. It seemed to be a family party at a sort of game. They had roads that crossed each other something like the figure 8, and when two happened to be on the crossing at once, the one made a bite at the other, and gave a squeak in passing. There would be eight or ten of them, and they kept up their sport for a good half hour at least.

Mouse destroying Crocus Bulbs.—There is a sort of Mouse destroys all our Crocus roots here. They are most destructive on the white and blue varieties; but last year they commenced on the yellow sorts also. I think they get into Moles' runs, and thereby gain access to the Crocuses.

[The Mouse that destroyed Crocuses at Oldcambus and Bowshiel, was the Long-tailed Field-Mouse (*Mus sylvaticus*). Last winter they thinned out many clumps of yellow Crocuses in the borders at Redheugh, having got at them through the Mole runs.] J.H.

Greater Spotted Woodpecker.—There has been another of the Spotted Woodpeckers shot at Brockhole's Wood since the new year, by the Hon. G. D. Home. It is the only one I have seen, and was a female in fine plumage.

Hawk-Moths.—I had a fine specimen of the Death's Head Hawk-Moth (*Acherontia Atropos*) from Mr Rogers, Primrosehill, who got it in one of his bee-hives in summer, hanging in the corner like a piece of rag. He thought it had destroyed his bees, as they were not getting on so well as he expected them. I also got one of the Bedstraw Hawk-Moths (*Deilephila Galii*) hovering among the flowers. When I took it out of the net, one of its antennæ was missing, which accounted for its being so easily captured.

Dodder.—I never saw Dodder till this summer, when I met with it on a small bush of whin, and on heather on Hoardweel. I could see no seeds or flowers on it.

The NARCISSUS PSEUDO-NARCISSUS, or Common Wild Daffodil, as it occurs at Whitehall, in the parish of Chirnside, Berwickshire. By CHARLES STUART, M.D., Edinburgh.

A FEW years ago, in writing a sketch of the Botany of the County of Berwick, for the Botanical Society, the occurrence, in profusion, of the Common Daffodil at Whitehall, was mentioned as happening all through the woods. A hint was given that a careful search might reveal some new forms or varieties among such a mass of flowers. Following out this idea, after accidentally seeing some blooms obtained from the quarter just mentioned, I examined carefully the whole place. In one spot of very limited extent I came upon a number of specimens of the Ajax section of the Narcissus, of miniature size, graduated from *N. nanus*, *N. minor*, to a size resembling a miniature *N. maximus*. These were growing in the turf in a deep hazel loam. I was at the time so greatly struck with the beauty and elegance of the flowers, so unlike anything in cultivation, that I brought them home, and kept them in water for closer examination. There were at least twelve distinct sorts, and the series constitute a group leading up from *N. minimus*, *N. minor*, to a size something like *N. maximus* in miniature. They must have been growing in the situation they were in for a hundred and fifty years. After several years' trial they remain quite the same in size as when I dug them up, so that they retain their miniature size under cultivation. They are mostly single, with prominent trumpets, which are in many instances everted, serrated, and flanged. Their perianths vary in colour, from a deep golden to a pale lemon colour.

There are several double forms in the group, one of which named "Golden Spiral" by me, has been submitted to the critical "Narcissus Committee" of the Royal Horticultural Society, London, who through Mr Scrase-Dickens, their Secretary, informs me that this variety aroused great interest among the members, as being a dwarf double form quite unknown. He also states: "The range of form and colour among the Ajax section, wild or naturalised in this country, is most remarkable, and would not have been credited a few years ago."

The question arises, How did these wild forms originate? Are they sports or seedlings? In answer to the first of these

questions:—About 1750 or earlier, Mr William Hall, a former proprietor of Whitehall planted and beautified the grounds, introducing the Common Daffodil as it is found growing now all through the woods. These small sorts must have got more care bestowed on their cultivation, for they grow in a situation which might have been a flower garden in the olden time, near a bowling green, which is now overgrown. This miniature group, however, may have been seedlings or sports, from *N. nanus*, *N. obvallaris*, or *N. Scoticus*. Such is the belief of competent judges, for the blooms have been seen by Mr Peter Barr of London, who has done much to classify and arrange the *Narcissus* family. He says the blooms I submitted for his inspection are entirely new to him.

Now that they have been cultivated in the open air, and properly looked after for several years, they have developed their true qualities, and are much finer this spring than they ever were before. They form a distinct chain leading up, from the small to the largest forms, and are finely graduated, which constitutes their distinctness. Next spring when they flower, it is intended to label the group carefully to ensure the identity of each variety, and to name each to prevent future confusion. It is quite possible that some of the roots obtained now three years ago, may not have flowered, and that some new sort may yet disclose itself. “Golden Spiral” did not bloom till this spring although planted three years ago. It has the fine spiral twist in the petals as seen in the perianth of *Narcissus maximus*, and it gives this double flower a very distinct appearance.

As I have already stated, I consider that all the Daffodils at Whitehall have originally been planted and become naturalised through the woods. About the twentieth of April, they are a sheet of bloom, and on a sunny breezy day, are a sight to see. An occasional single flower occurs among the doubles—but if dug up, I find that invariably it becomes double under cultivation. That the miniature group is quite distinct from those growing under the trees, is a matter also beyond dispute; and I have already stated my own opinion, and that of others, as to their origin. Mr William Hall died in London, 3rd April, 1800. He succeeded to the estate of Whitehall about 1750. The lands of Whitehall were purchased by the Halls from the Earl of Home, about the Revolution, and remained in their possession for a century and a half. They were of the same family as the present Sir

Basil F. Hall, Bart., of Dunglas. The estate was bought about forty-five years ago, by Mr Mitchell Innes of Ayton Castle, in whose family it now remains. The lower part of the estate, next the Whitadder, is a fine woodland, planted by the Halls shortly after the estate came into their possession; and it is quite possible that the Narcissi were introduced at the same time, which would make them of older date than I first stated.

Since writing these pages, I have had an interesting correspondence with the Rev. A. Wolley-Dod, Edge Hall, Malpas, Cheshire, the greatest living authority on the Daffodil, who writes me that he considers the blooms I have sent him, a very interesting set of small Narcissi. He considers the doubles the most interesting of those sent, and that they are a smaller form of double, and more self yellow (concolorous) than any he has seen before. He writes "I have several times found that when two varieties of Daffodil flower together, under circumstances favourable for seeding, they produce not only intermediate forms, but forms distinct from both parents. The parents of those you send may probably be the Wild English Daffodil and *nanus*, or some other dwarf variety. The whole series is a good illustration of the way in which Daffodils vary when grown from seed of closely allied forms. A double is a new departure in progressive development; and therefore, when 'a sport' does not always follow the form of the seed parents, *Scoticus*, *nanus*, *odorus*, have all to do with their parentage, according to the best authorities." Mr Burbridge of Dublin has also seen this miniature group in blooms, sent by the Rev. A. Wolley-Dod, but I have not as yet heard his report.

I am indebted to Mr John Wilson of Wellnage, Duns, formerly of Edlington Mains in this parish, for the following anecdotes concerning MR WILLIAM HALL, who served in the army in his youth, in the Engineer Corps. "It was there that he acquired that knowledge of surveying which he put at the service of the public, when the turnpike road between Berwick and Duns *via* Foulden was about to be made. The scheme had been much discussed by the local proprietors, and a resolution had at last been come to, that the work be proceeded with. Of course there were various opinions as to the best route for it, and much conflicting interest, on the part of those concerned, to have it

where it would best serve their individual convenience and advantage. It was in these circumstances that Mr Hall, using his professional skill, made a personal survey of the whole line, prepared plans with drawings and sections, etc. for the work, and a statement of the reasons for adopting the route which he had chosen. When the day arrived on which they were to meet and come to a decision, the other proprietors, knowing well enough that Mr Hall's scheme was unassailable on its merits, but knowing also that it did not suit their private interests, had preconcerted a way to defeat it. They knew Mr Hall's peculiarities of temper, that contradiction at once so disturbed him as to unfit him to sustain an argument and defend his opinions; and so as pre-arranged, some of them, when Mr Hall had produced his plans and was proceeding to expound them, interrupted him with some absurd objections. As they had anticipated, he at once lost his temper; began to stutter and stammer, and then in angry disgust, gathered up his papers and left the room. Having thus got quit of him and his judicious plans, they proceeded to adopt others to suit their selfish ends, and inflicted upon the community *in perpetuo*, the line as we see it, with its outrageous gradients and course so circuitous as to make it longer nearly by two miles than was necessary. Mr Hall was a man of taste, an enthusiastic botanist, and a zealous agricultural improver. He was among the earliest in the district to enclose and subdivide his estate. It was he who laid out and planted the woods which still in part remain. He had purposed to build a handsome mansion on the site still marked out by the Bowling Green in front of it, and the avenues of yew and holly, which in my boyhood were intact and exquisitely beautiful. They have since been ruthlessly destroyed in excavating the bed of gravel over which they grew. The sheets of Snowdrops and Daffodils, with every returning spring, still recall the memory of the kindly Laird who planted them. From what my grandfather used to tell of the height of the young Beeches in the Hundred-foot plantation, in his school-boy days, it must have been planted in 1740. The first Swedish Turnips grown in Berwickshire as a field crop, were on Whitehall Home Farm. The first trial was eminently successful, whereupon Mr Hall had some of the roots transplanted into his nursery to produce seeds. The produce of this home raised seed proved utterly worthless, on which Mr Hall concluded that our Scotch climate was unsuitable for this plant,

and its culture was not again attempted for some years. The readiness with which all the *Brassica* hybridize was not then understood, and he had failed to notice the true cause of failure, which was that a plant of Curled Greens had been allowed to flower alongside the Swedish Turnips. Mr Hall's most notable characteristic was his almost incredible absent-mindedness. Many amusing stories illustrative of this peculiarity used to be told, one of which I am able to recall. On an autumn afternoon, Mr Hall had strolled up the Blackadder on a botanizing errand, and had got in front of Kelloe House, when he was accosted by Colonel Buchan, who insisted on his going in with him to dinner. On reaching the house, Mr Hall was shown to a bedroom to tidy himself a little. By-and-bye dinner was announced, but the guest failed to appear. After some delay, a man-servant was sent to summon him more specially, who presently returned with the report that Mr Hall was in bed—the fact being, that finding himself in a bedroom with the shutters shut, candles lit, and bed made down, he had forgotten all about dinner or where he was, and had undressed and gone to bed. Such escapades as these were only amusing; but this mental defect led to disastrous failure in the most important enterprise of his life. He had successfully wooed a young lady; a day had been fixed for the marriage; the company had assembled; but the bridegroom failed to appear. He had forgotten even this important tryst, which so affronted the bride that she refused to have anything more to do with him. A common Berwickshire saying applied to forgetful people is:—

‘Ye’re as bad as Willie Ha’,
Wha forgot his Wedding-day.’

He died a bachelor. I have already mentioned his enthusiastic pursuit of Botany. This led to his writing a treatise on some department of that science, which he went to London on express purpose to get printed and published. On reaching London, he drove in a hackney coach to the shop of a bookseller he was acquainted with, having his manuscript lying on the cushion beside him. On reaching his destination, he went into the publisher's place of business, and had a full discussion with him about the bringing out of the book. The publisher at length said: ‘Well, Mr Hall, I think we have arranged everything, where is your manuscript?’ Aye! where was the manuscript? It had gone with the discharged coach, and was never more

heard of; the most assiduous efforts having failed to obtain any trace of it,—and so ended Mr Hall's attempts at authorship."

Since Mr Hall's death, Whitehall has been unfortunate. He bequeathed this fine estate to his nephew, Sir James Hall of Dunglass, and with it a sum of money sufficient to build the mansion house, which he had prepared for. Sir James, however, had by that time built a large and costly mansion at Dunglass, and had no use for another house, but abundant uses for the ready money; and so he left his uncle's purpose unfulfilled. Again, when his son Sir John Hall sold Whitehall to Mr Mitchell Innes (who shortly before had bought Ayton estate also) the new proprietor preferred to build at Ayton; and the beautiful site at Whitehall has been consigned to neglect and defacement.

Some Notes on the occurrence of PALLAS'S SAND GROUSE, Syrrhaptes Paradoxus, (Pallas) in the District, during the recent visitation of the species to this country. By GEORGE BOLAM, Berwick-on-Tweed.

As probably most of our members are aware, Europe, including the British Islands, was in 1863 invaded by immense flocks of Pallas's Sand Grouse, *Syrrhaptes Paradoxus*, (Pallas); and 1888 has become memorable in the annals of Ornithology for a second great irruption of the species. Spending the winter in Mongolia and the vast sandy steppes of Central Asia, the Sand Grouse at the approach of spring migrate northwards in countless flocks to breed, and it is at this season of the year that they occasionally find their way into Europe. Speculation as to the causes of these periodical irruptions, is beyond the scope of a paper of the present description, suffice it therefore to say that Professor Newton in chronicling the invasion of 1863 (*Ibis* for 1864, pp. 185-222) inclined to the theory of over population and the natural increase of the species, and remarked that "unless some physical change occurs in the Tartary steppes which may have the effect of relieving the pressure, another outpouring may be safely predicted, and probably the thrice found channel will be again used by the emigrating population." This prophecy has been fulfilled after a lapse of 25 years, and

Professor Newton having undertaken to write a similar history of the present invasion, we may with confidence look forward to his paper for all that has been discovered during our recent experience regarding the habits and peregrinations of this most interesting bird.

The visitation of 1888 in point of numbers seems to have exceeded anything which had gone before. Mr William Evans (Proceedings of the Royal Physical Society of Edinburgh, vol. x., p. 122) has estimated that not less than from 1500 to 2000 of the birds reached Scotland, and probably these figures will be found to be rather too low than too high. Becoming first known in the British Islands from a few appearances in Norfolk, Cardigan, and Kent, in July and November 1859, Sand Grouse were again observed in 1872, when small flocks were seen in Northumberland and Ayrshire; and in 1876 a pack was noticed in Norfolk in May, and two birds were shot in county Kildare, Ireland, in October*; but with these exceptions no Sand Grouse had been seen upon our shores since 1863. In that year, the first to be noticed in Great Britain were three birds which were killed at Thropton near Rothbury, on 21st May, and curiously enough amongst the pioneers of the present invasion, one, a male, was picked up on 23rd May 1888, below the telegraph wires at Cragside (the seat of Lord Armstrong) in Northumberland, and within a few miles of where they had occurred just a quarter of a century before. On 8th May 1888, the first Sand Grouse were noticed on Heligoland (Herr Gatké in the *Zoologist* for July) flocks of from 10 to 200 individuals following each other in rapid succession, almost every day afterwards; and on the 12th of that month a party of thirty had reached the Naze in the south of Norway (Professor Collett, in the *Ibis* for 1888, p. 375). According to a paper published by the Rev. H. A. Macpherson, from information chiefly collected by Professor Newton, and Mr J. A. Harvie Brown, the earliest authentic arrival in Scotland, was on 14th May, when some birds were seen at Fyvie in Aberdeenshire, and a few days later they were reported from all along the coast. The male, already mentioned as having been picked up at Cragside, was presented by Lord Armstrong to the Newcastle Museum, and is now preserved there, but the birds seem to have reached Northumberland some

* See Saunders' "Manual of British Birds;" also 4th edition of Yarrell, etc.

time before this. Holy Island, as might have been anticipated from its situation and its extensive sandy links, was one of the first places to be visited, and early in May several of the birds were noticed by the fishermen amongst the *bents*. They were mostly in pairs and were so tame that the people supposed they must be birds which had escaped from confinement, and many were the attempts made to capture them; one man assuring me that he had almost succeeded in catching one pair with his hat, so reluctant were they to take wing. The exact date of their first appearance at Holy Island I have been unable to trace, but at any rate it was sometime between the 6th and the 19th May, for upon the latter date, Mr Charles Purvis of Alnwick informs me that he was at the Island, and was told by the fishermen about the strange "partridge-like birds with long tails" which they had lately seen.

Early on the morning of Sunday, 6th May, a vessel being aground upon the Megstone, one of the Farne Island group, the Holy Island men went off to her assistance, and while they were there a single Sand Grouse was seen upon the Island. The date of the wreck fortunately fixes this date, which, if the men are to be relied upon, is the earliest record, so far as I am aware, of the arrival of the birds in this country. The fishermen had, later on, ample opportunities of seeing and becoming familiar with the birds, and were not therefore likely to be mistaken as to identification, while upon the other hand they had no sort of motives for giving an earlier day for the arrival than was actually the case; there is also the fact that within a few days at any-rate numbers of the birds were seen at Holy Island.

The Sand Grouse remained at Holy Island for some weeks after their first arrival, and by the end of May, had collected together into a large flock, which used to feed largely upon a field of springing barley, and the farmer fearing damage to his crops, discharged his gun more than once *into the brown* of them. As many as ten birds were said to have fallen in this way to one shot, and pies were reported to have been made of some of them. The majority were either eaten or destroyed, the wings in some cases going to decorate the Sunday bonnets of the fisher-lassies, but a few specimens found their way into other hands and were preserved; I have records of, or have seen, fully ten or a dozen individuals so saved and set up by local people, while a good many of the birds found their way from Holy Island into

collections in Newcastle and upon Tyneside. The last of the flocks which frequented the Island was not seen there after 9th July.

From George Robertson at Goswick Fishery, who, in the prosecution of his calling, is almost daily at Holy Island during the salmon netting season, I learn that though he and his men used frequently to see the birds at Holy Island during May and June, and occasionally flocks or small parties of them flying over the sands which are covered at high water, he only once saw any of them upon the main land. This was about the beginning of June, and the flock which consisted of twelve or fourteen birds, was observed feeding in a field of young barley upon Cheswick farm near the Railway, associated with some tame Pigeons.

Speaking of the birds generally, Robertson says "they were at first quite tame, but after being shot at a few times, got to be very wild and would not suffer of a near approach; upon the ground they run rather like Partridges, and when still, hold their heads so high in the air as sometimes to appear almost as if sitting on end." A flock, which Robertson counted as they flew over the sands in front of his house at Goswick, on or about 10th June, numbered thirty-two individuals.

At Ross, which is upon the main land adjoining Holy Island to the south, and where there is a wide expanse of sandy links and moory ground extending to upwards of 800 acres, it was hoped that some of the Sand Grouse would have bred, and no pains were spared by Lord Tankerville, and Mr Hardie, the tenant of the farm, to insure their being, so far as possible, unmolested. But although they arrived here in May, and by the end of that month had gathered into a flock of 30 or 40 birds, they were never observed to exhibit any signs of nesting. During the latter part of May, and the whole of the following month, the birds were seen almost daily upon a field of young corn; later on, one of their favourite haunts was amongst some turnips adjoining the links, and after harvest they were frequently seen upon the stubbles. From the end of June until the 12th July, no Sand Grouse were noticed at Ross, but upon that date a party of fifteen re-appeared and remained for a day or two. After they had left no more were seen until near the beginning of August, when a large flock took up their abode upon the links, and remained until far into the autumn. On

16th August I visited Ross and walked up to within fifteen yards of a flock of fifty or sixty birds ; they were found in one of the large flats amongst the sand hills, and were not visible until we were close upon them. Just before taking wing, the whole flock ran together into a compact mass, and as they rose a good deal of noise was made, the call of "tick-a-rick" "tick-a-rick" being often repeated, and the whirring made by so many rapidly moving pinions was also considerable. As demonstrated by the tracks left upon the sand, the birds had been running about and dusting themselves, and upon the ground we picked up a quantity of feathers which had been cast off ; some of the feathers, the rectrices and long wing-feathers in particular, were a good deal worn and broken, but others were comparatively perfect, the rich colouring and sharply defined spots on some of the upper coverts, etc., being very fine and most striking. The base of all the small body feathers is thickly clothed with a dark rich brown-coloured down, which must afford the birds very considerable protection against cold. Their moulting condition gave the birds a very irregular and patchy appearance, and on the ground they rather resembled a flock of Pigeons, but in flight the curved wings and the way in which they flock together and turn, is at once suggestive of Plovers. Although, as has been said, the birds remained at Ross until late in autumn, the flock became gradually much broken up and scattered about, and after the end of October only occasional stragglers or small wandering parties were to be met with. Mr Hardie, on 19th October, reported that the flock, once 150 or 200 strong, had by that time dwindled down to about 30 birds ; and Robertson from Goswick wrote, that five which flew past him on or about 17th October, were "the only ones he had seen or heard of lately." Many of the birds were shot upon neighbouring farms, or when they strayed upon the sands at low-tide ; but whether this was the main cause of their disappearance seems rather doubtful, for even where unmolested they did not appear to remain. The birds killed in the autumn, which I had opportunities of examining, had quite completed their moult, and were in capital condition ; the plumage, though a little darker generally than in the case of birds killed in the spring, was not materially changed, but the bloom upon the new feathers gave them a fresh appearance, which those killed during the summer did not display.

In four males, shot from a flock at Fenham, about the middle of October, the central rectrices exceeded the rest of the tail in length by $4\frac{1}{4}$, 4, and $3\frac{1}{2}$ inches respectively, the first primaries extending in like manner beyond the next largest feather in the wing $1\frac{3}{4}$, $1\frac{1}{4}$, and $1\frac{1}{2}$ inches. These were perhaps the finest specimens which came under my notice, the tails in particular being unusually long; but it is only right to add that, although I do not think the above measurements were materially affected by it, they were taken *after* the birds had been stuffed and set up.

The last Sand Grouse which I saw alive was at Easington Demesne upon 24th October, we were shooting Partridges upon a day that was beautifully warm and bright, and in walking across a bare oat stubble, a single bird got up within three or four yards of my feet. It rose very suddenly uttering a rather loud note, and mounted quickly into the air in a slanting direction, until an altitude of some 50 yards had been gained, when, bending round, it passed almost over the head of a friend, who, though an ardent sportsman, is not an ornithologist, and, laughing at me when I said *Grouse*, he maintained that from its flight the bird must be some sort of *Plover*. The cry of "tick-a-rick" "tick-a-rick" was often repeated, and after flying some distance, the bird was observed to dash almost perpendicularly downwards with a quick shaking of the wings, rising again when within a few feet of the ground, on almost motionless pinions, in the manner so common to birds of the Redshank tribe. It appeared to be a male in full plumage, and was very strong upon the wing. Its lying so close, even amongst such scanty covering as was afforded by the bare stubble, is interesting, and was very suggestive of sport in the event of the species becoming acclimatized. A month after this, or about the middle of November, Mr Hardie's rabbit-catcher saw a party of ten or a dozen birds in one of the fields upon Easington Demesne farm, but during the remainder of the winter no more were heard of. On 4th March 1889, however, a solitary individual was seen by Matthew Robertson flying past Goswick, and another, possibly the same bird, frequented Ross links for a day or two about the same time. These, with the exception of two reported by the fishermen to have been seen near the coves at Holy Island a day or two previous to 14th May, are the only instances of Sand Grouse having been observed in the district during 1889, of

which I am aware, and the recent Act, protecting the species for three years, from 1st February 1889, would seem therefore to have been a sort of Parliamentary shutting of the stable door after the horse had escaped!

On the north side of the Tweed, two females and a male were killed out of a flock of over twenty, upon Oldhamstocks Mains near Cockburnspath, on 17th May, by Mr Clark, the tenant of the farm; and Dr Hardy tells me that several others were noticed in that neighbourhood about the same time; while in the *Scotsman* of 4th June, Dr Stuart records a female captured on 25th May, out of a flock of twelve, at Foulden West Mains, and presented by Mr Craw to the Zoological Gardens in London. Dr Stuart has informed me that the birds were thought to have been seen between Foulden and Chirnside, a few days prior to this capture, and that he himself saw a male in the beginning of June, sitting alone in a field on the side of the road leading from his house to the village of Ayton.

On 5th June a very fine male, now preserved in the Berwick Museum, and said to have been shot a few miles south of the town, was brought to the late Mr Scott, who purchased it for the museum; it had been dead only a few hours, and is in beautiful plumage, in fact as fresh-looking, though somewhat paler, as any that were killed in the autumn. It was upon the same day that I saw my first live Sand Grouse; we were playing tennis upon the Berwick Cricket Field, about 7.30 in the evening, when eight birds came up as if straight from the sea, and flying in a south-westerly direction, passed within sixty or seventy yards of us. They flew close together in a slightly broken line, and when approaching looked much like Oystercatchers or Plovers, though perceptibly larger than the latter birds. The flight was swift, the stroke of the wings being rapid and regular, and the long pointed feathers of the wings and tail were readily distinguished. As the light fell upon them as they passed, the birds presented a conspicuous yellow or sandy colour, and the stripes and dark chestnut patches on the lower parts of the body were also visible.

A solitary bird was seen on 14th August near Low Cock Law, two miles north-west of Berwick, by Dr Charles Fraser, who also informs me that two were observed by Leslie, gamekeeper with Mrs Jerningham, flying past Longridge Towers, a few days before. The bird seen by Dr Fraser was running about the

bottom of a hedge-row, close to the Edrington Road, and pulling up his horse, he watched it for some minutes, easily identifying it from stuffed specimens which he had recently seen in Berwick. On 29th August, a bird, which, from its description was probably a Sand Grouse, was seen upon the Magdalen fields near to Berwick pier, and on being disturbed, flew straight out to sea.

A flock of eighteen was seen by Mr Nesbit upon the sea banks at Scremerston, two miles south of Berwick, about the end of May, and thirteen were noticed by Mr Watson, feeding in a field of young corn, on the side of the road leading from Beal to Holy Island, about the same time; two others flying past him as he was crossing the sands on his way to the Island a few minutes later. About the second or third week in May, a pair was shot upon the Snook End, Holy Island, and a day or two afterwards, near the same place, five more were killed from a flock at one shot, by the same person. On or about the 20th June, a considerable flock was seen upon a field of barley near Lowick; from twelve to twenty birds having appeared at Laverock Law, about two miles south of that village, ten days or a fortnight previously. On 8th June, a solitary Sand Grouse occurred near Chillingham Castle; I had been fishing, and was standing on the banks of the Till, talking with Spraggon the keeper, when it suddenly made its appearance and passed close over our heads. It was flying very rapidly as though much frightened, and uttering a continuous "tuck" "tuck" "tuck" much resembling the call of Blackgame when on the wing. A dozen Swallows, which were in pursuit, evidently regarded the stranger with suspicion, and the whirr made by its wings was considerable, as it dashed over our heads and disappeared through some trees growing close by.

On 1st August, Mr John Robertson saw two flying over the saltgrass between Goswick and Beal.

In the hands of bird-stuffers in Newcastle, I at different times examined many specimens killed in Northumberland and Durham, the great majority of which were males, and principally obtained during the spring or early summer months. Mr Robert Duncan of Pilgrim Street, though not always in a position to give dates and localities, has favoured me with the following information regarding some of the birds which passed through his hands. On May 21st, he received two (both males) from St. Mary's Island at the mouth of the Tyne. On 1st June,

another, a female, was killed close to Newcastle. On 4th June two were sent to him, and on 9th, two more, all males; and from localities in Northumberland. About 25th July, a female was shot at Riding Mill-on-Tyne, and Mr Duncan has also recorded in *Newcastle Weekly Chronicle*, a female, which was captured during a storm, on board the steam trawling boat "St Oswin" when at sea, about 40 miles off Tynemouth. This was early in June, and the bird lived for some time in an aviary in the Northumberland Park at North Shields. In the same paper of date 23rd June, one is mentioned as having been picked up "a fortnight ago" upon Embleton North Farm, and flocks were seen by Mr Laing, at Burton, and upon a field of seeds near Chathill.

It may not be out of place to mention here, that there is, in the Museum at Newcastle, a female specimen, labelled "shot near Berwick about 25th September, 1863;" and that Mr Duncan tells me that a male and two females which he preserved in 1863, were killed at Holy Island, on 5th October. Mr Howse of the Newcastle Museum has also obligingly informed me that he saw three Sand Grouse which were killed at Whickham, county Durham, on 17th May, and another from near Winlaton, about the same date. On 23rd May, one was picked up upon the Railway near Widdrington, Northumberland (H. Kerr, in *Newcastle Weekly Chronicle*, 16th June); and during the same month, Mr James Grey saw the remains of one which had been killed upon the telegraph wires near Longhoughton Station. On 13th June I saw two, male and female, which had been recently set up by Mr Thompson, bird-stuffer in Alnwick, and which had been shot together with a third which was not preserved, on the sea-coast near Boulmer, and others were reported from Stamford, and near North Sunderland.

Several other instances of the occurrence or capture of Sand Grouse in the district in 1888, might be given, but enough has already been stated to show that during the latter part of May, and throughout the summer, the birds were distributed pretty much all along the coast of Northumberland, straying in many cases to more inland districts. By the autumn not a few still remained in more favoured localities, but with the approach of winter, they quickly disappeared, and with the trifling exceptions above mentioned, I have not heard of any being seen in 1889. The visitation of 1888, therefore, would seem to have had no more lasting effects than its predecessor of 1863.

Whether, even under the most favourable circumstances, Sand Grouse would ever settle down and remain with us, or even become annual migrants to Western Europe, seems at best to be very doubtful. It has been argued that the Pheasant and other birds have, after artificial introduction, become perfectly acclimatized in our Islands, but that proves nothing, when we are dealing with a bird whose power and inclination for flight surpasses the Sandpipers' and almost equals the Swallows'. There may be localities amongst our dry sandy links which seem to offer suitable nesting places to the Sand Grouse, and we know that they *can* subsist and even thrive with us; but are the attractions for them to remain greater than those offered to the countless flocks of Sandpipers which visit our shores every winter, but not one of which ever stays to breed?

In 1863, the Sand Grouse bred in Holland and Denmark where eggs were taken, and in 1888, they seem undoubtedly to have done so in at least one locality in Scotland; while last year they returned to the same place, and a downy chick which had been found there during August, was exhibited by Professor Newton, at the meeting of the British Association at Newcastle, on 12th September, 1889. For particulars of this, we must be content to await the publication of the Professor's 'promised contribution to the *Ibis*'; but some interesting information respecting the reported finding of the eggs and young upon the Cullin Sands near Forres, in 1888, are given in Mr Macpherson's little book already alluded to.

In concluding this paper, which has run to much greater length than was at first intended, I hope I may be pardoned for remarking that, wishing to give the birds every possible chance of remaining with us, I did not shoot a single Sand Grouse, although many opportunities presented themselves. My collection is therefore without an example of the irruption of 1888, and if any friend, who may chance to read this, has a specimen to spare, which he would care to dispose of to me, I need not say that it will be gladly received and duly appreciated.

Measurements of Trees (ARAUCARIAS) at Duns Castle.

October, 1880 ; measured by PETER LONEY, Marchmont
(H.B.N.C., vol. ix., page 380).

Tree.	Height.		Girth at 1ft. above ground.		Girth at 3ft. above ground.		Girth at 5ft. above ground.	
	ft.	in.	ft.	in.	ft.	in.	ft.	in.
No. 1.	39	6	7	0	5	4	5	0
„ 2.	36	0	5	9	5	0	4	10
„ 3.	33	0	3	6	3	2	3	1

5th May, 1890 ; measured by R. AIKMAN, Duns Castle.

No. 1.	42	4	9	8	6	9	6	4
„ 2.	39	4	7	8	6	3	5	6
„ 3.	39	11	5	0	4	2	3	9

Rainfall at Glanton Pyke, Northumberland, in 1889,
communicated by FREDK. J. W. COLLINGWOOD, Esq. ;
and at Duns, Berwickshire, in 1889, communicated by
CHARLES WATSON.

GLANTON PYKE.				DUNS.			
			Inches				Inches
January	..	..	1·09'0	January	..	..	0·81
February	..	..	1·35'0	February	..	..	2·40
March	..	..	2·26'0	March	..	..	2·10
April	..	..	4·01'5	April	..	..	3·92
May	..	..	1·58'5	May	..	..	1·95
June	..	..	0·40'0	June	..	..	0·75
July	..	..	3·35'0	July	..	..	5·04
August	..	..	4·32'0	August	..	..	4·99
September	..	..	1·67'0	September	..	..	1·45
October	..	..	4·49'5	October	..	..	5·57
November	..	..	0·43'0	November	..	..	0 63
December	..	..	1·21'0	December	..	..	1·13
Total			26·17'5	Total			30·74

RAIN GAUGE :— Diameter of
Funnel, 8in.; Height of Top, above
ground, 4ft. 3½in.; above Sea Level,
517ft.

RAIN GAUGE :— Diameter of
Funnel, 8in.; Height of Top, above
ground 6 inches; above Sea Level,
500ft.

Note of Rainfall and Temperature at West Foulden during 1889. By H. HEWAT CRAW, West Foulden.

Height above sea-level, 240 feet. Distance from sea at Berwick, 6 miles.

			RAINFALL.		TEMPERATURE.	
			Inches.	100ths.	Max.	Min.
January	..	..	0	84	52	25
February	..	..	0	98	54	19
March	..	..	2	93	56	23
April	..	..	3	30	61	30
May	..	..	2	45	74	39
June	..	..	0	50	76	35
July	..	..	4	20	77	40
August	..	..	4	48	72	40
September	..	..	1	43	64	34
October	..	..	4	28	59	34
November	..	..	0	48	59	28
December	..	..	1	16	53	24
Rainfall during 1889			27	3		
Max. and Min. during 1889			..	..	77	19

Note of Rainfall and Temperature at Rawburn during 1889. By the same.

Height above sea-level, 920 feet. Distance from sea at Berwick, 24 miles.

			RAINFALL.		TEMPERATURE.	
			Inches.	100ths.	Max.	Min.
January	..	..	1	0	52	22
February	..	..	2	10	50	18
March	..	..	2	50	54	14
April	..	..	5	0	59	29
May	..	..	2	20	76	38
June	..	..	0	70	75	35
July	..	..	3	0	65	45
August	..	..	7	80	65	39
September	..	..	1	20	64	32
October	..	..	5	60	52	32
November	..	..	0	60	50	25
December	..	..	1	80	51	21
Rainfall during 1889			33	50		
Max. and Min. during 1889			..	..	76	14

Rainfall at Belle Vue House, Alnwick, Northumberland, in
1889. By JOHN JAMES HORSLEY.

MONTH.	TOTAL DEPTH.		GREATEST FALL IN 24 HOURS.		Number of Days on which '01 or more fell.
	Inches.	Depth.	Date.		
January	1·00	0·17	10th	16 Days	
February	0·58	0·15	28th	16 "	
March	2·42	0·97	19th	14 "	
April	3·41	0·84	30th	20 "	
May	2·21	0·70	10th	12 "	
June	0·57	0·28	8th	5 "	
July	3·74	0·76	23rd	14 "	
August	4·84	1·38	19th	26 "	
September	2·00	0·51	27th	15 "	
October	4·73	0·65	12th	26 "	
November	0·53	0·11	2nd	7 "	
December	1·76	0·55	6th	14 "	
Total	27·79	7·07		185 Days	

RAIN GAUGE.—Diameter of Funnel, 5in.; Height of Top, above ground, 1ft.; Above Sea Level, 303ft.

REMARKS ON THE YEAR.—Number of Days Hail, Sleet, or Snow fell; Jan. 6, Feb. 14, March 8, April 6, May 1, June (nil), July 2, August 1, Sept. 1, Oct. 2, Nov. 2, Dec. 1.—Total 44 Days.

Rainfall at Marchmont House, Duns, Berwickshire, in
1889. By PETER LONEY.

MONTH.	TOTAL DEPTH.		GREATEST FALL IN 24 HOURS.		Number of Days on which '01 or more fell.
	Inches.	Depth.	Date.		
January	0·82	0·10	10th	17 Days	
February	2·37	0·37	3rd	24 "	
March	2·96	0·85	19th	15 "	
April	4·44	0·87	4th	21 "	
May	2·20	0·63	24th	15 "	
June	0·86	0·48	2nd	9 "	
July	4·87	1·12	9th	16 "	
August	4·32	1·00	19th	22 "	
September	1·56	0·45	18th	13 "	
October	5·70	0·95	12th	29 "	
November	0·77	0·15	1st	11 "	
December	1·50	0·34	6th	16 "	
Total	32·37			208 Days	

RAIN GAUGE.—Diameter of Funnel, 5in.; Height of Top, above ground, 1ft.; Above Sea Level, 500ft.

REMARKS ON THE YEAR.—April was a wet, cold month; July and August, cold and wet; October was very wet and sunless. Total amount of sunshine in hours for the year, 1234½.

Donations to the Berwickshire Naturalists' Club, from Scientific Societies, Exchanges, &c., 1889-90.

BATH. Proceedings of the Bath Natural History Society and Antiquarian Field Club, Vol. VII., No. I., 1890, 8vo.

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SHANGHAI, CHINA. Catalogue of the Chinese Imperial Maritime Customs Collection at the U.S. International Exhibition, Philadelphia, 1876, 4to. *Essex Institute, Salem, Mass.*

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————— Catalogue of Australian Birds in the Australian Museum, Part ii., Striges ; supplement to Australian Accipitres, by E. P. Ramsay, LL.D. *Ibid.*

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From the Smithsonian Institution.

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WASHINGTON, U.S.A. Seventh Annual Report of the United Geological States Survey to the Secretary of the Interior, 1885-86, by J. W. Powell, Director. Washington, 1888, 8vo.

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From the U.S. Department of Agriculture. Division of Ornithology and Mammalogy.

———— The English Sparrow (*Passer Domesticus*) in North America, especially in its relations to Agriculture. Prepared by Walter B. Barrows, Assistant Ornithologist, 8vo.

From the U.S. Department of Agriculture. Division of Economic Ornithology and Mammalogy, by J. M. Rusk, Secretary of Agriculture.

WELSHPOOL. Collections, Historical and Archæological, relating to Montgomeryshire and its Borders, Part XLVI., April 1890, 8vo.

From the Powysland Club.

General Statement—October 1889.

THE INCOME AND EXPENDITURE HAVE BEEN:—

INCOME.

			£	s.	D.	£	s.	D.
Balance due from Treasurer	..		21	5	11			
Arrears received	..	..	19	4	6			
Entrance Fees	..	..	10	0	0			
Subscriptions	..	..	108	0	0			
			<hr/>			£158	10	5

EXPENDITURE.

Printing	..	..	..	90	6	3½		
Lithographs and Photogravures	..			30	2	0		
Expenses at Meetings	..	..		9	12	0		
Postage, Carriage, &c.	..	..		10	6	10		
Berwick Salmon Co.	..	..		11	12	3		
Balance due from Treasurer	..			6	11	0½		
				<hr/>			£158	10 5

*Places visited by the Members of the BERWICKSHIRE
NATURALISTS' CLUB since 1872; (continued from Vol. VI.,
p. 463.)*

DATE.	PLACE OF MEETING.	VOL.	PAGE	PRESIDENT.
1872.				
Sept. 26	Berwick	vii.	1	Rev. F. R. Simpson.
1873.				
May 15	Chatton	vii.	3	Charles Stuart, M.D.
June 26	Hawick	vii.	12	
July 30	Bass Rock	vii.	15	
Aug. 28	Chirnside	vii.	19	
Sept. 25	Berwick	vii.	163	
1874.				
May 14	Etal and Ford	vii.	165	James Robson Scott, M.D.
June 25	Foulden and Berwick	vii.	170	
July 30	St. Abb's Head	vii.	173	
Aug.	Bothal and Morpeth	vii.	178	
Sept. 25	Kelso	vii.	351	
1875.				
May 12	Melrose, Rhymer's Glen, Cauldshiel's Loch	vii.	354	Rev. John F. Bigge, M.A.
June 23	Holy Island	vii.	357	
July 28	East Linton, Prestonkirk, Tynninghame	vii.	360	
Aug. 25	Yetholm	vii.	365	
Sept. 29	Alnwick	viii.	4	
1876.				
May 17	Dunbar	viii.	7	Archibald Campbell Swinton, Esq., LL.D. etc.
June 28	Selkirk, Philiphaugh, Bow- hill, Foulshiels, Newark Castle	viii.	12	
July 26	Norham	viii.	17	
Aug. 29	Rothbury, Craggside, Whitton Tower	viii.	24	
Sept. 28	Dunse, Kimmerghame, Wedderburn Castle	viii.	204	

DATE.	PLACE OF MEETING.	VOL.	PAGE	PRESIDENT.
1877.				
May 16	Gullane, Dirleton Castle, Archerfield, Saltcoats ..	viii.	207	Charles Douglas, M.D.
June 27	Acklington, Morwick, Brains- haugh, Felton	viii.	211	
July 25	Coldstream and Swinton ..	viii.	217	
Aug. 29	Chollerford, Chesters House, Roman Wall	viii.	221	
Sept. 26	Newton St. Boswells Bowden, Lilliesleaf, Riddell	viii.	226	
Oct. 31	Berwick	viii.	389	
1878.				
May 15	Chirnside for Blackadder and Allanbank ..	viii.	390	Professor John Hutton Balfour, M.D., etc.
June 26	Wooler and Yeavinger Bell	viii.	394	
July 31	Cockburnspath and Oldham- stocks	viii.	404	
Aug. 29	Embleton, Dunstanborough	viii.	412	
Sept. 25	Galashiels, Clovenfords, Ashiesteel, Fairnalee, Yair	viii.	417	
Oct. 16	Berwick	ix.	16	
1879.				
May 14	Reston and Houndwood House	ix.	9	Dr. John Paxton.
June 25	Kelso, Morebattle, Linton ..	ix.	20	
July 30	Alnmouth, Howick, Alnwick	ix.	31	
Aug. 27	Marchmont, Polwarth, and Greenlaw	ix.	40	
Sept. 24	Durham	ix.	49	
Oct. 15	Berwick	ix.	50	
1880.				
May 26	Dunbar, Spott, Innerwick ..	ix.	214	Charles Watson, F.S.A., Scot.
June 30	Gordon, Bassendean, Corsbie Castle, Legerwood ..	ix.	225	
July 28	Belford, Middleton Hall ..	ix.	244	
Aug. 25	Morpeth, Newminster Abbey Mitford	ix.	254	
Sep. 29 30	Gilsland, Birdoswald, Coombe Crag, Lanercost, Naworth	ix.	267	
Oct. 13	Berwick	ix.	287	

DATE.	PLACE OF MEETING.	VOL.	PAGE	PRESIDENT.
1881.				
May 25	Dunbar, Belton, Biel, Stenton, Presmennan	ix.	425	Rev. Thomas Brown F.R.S.E.
June 29	Grant's House, Edin's Hall, Penmanshiel, Renton House, Fastcastle, Pease Dean, Dunglass	ix.	442	
July 27, 8	Elsdon, Otterburn, High Rochester	ix.	451	
Aug. 31	Kelso, Roxburgh Castle, Makerstoun, Springwood Park	ix.	474	
Sept. 28	Innerleithen, Traquair, and the Glen	ix.	478	
1882.				
May 31	Haddington, Garleton Hills	x.	2	Rev. James Farquharson, M.A.
June 28	Hounam, Bughtrig, Chew Green	x.	8	
July 26	Longformacus, and Langton House, from Dunse	x.	21	
Aug. 30	Corbridge, Aydon Hall, Dilston Castle	x.	30	
Sept. 27	Jedburgh, Edgerston	x.	41	
Oct. 11	Selkirk, Haining, Philiphaugh, Harehead, Hangingshaw	x.	49	
1883.				
May 30	Kelso, Ednam, Eccles, Crosshall, Leitholm, Anton's Hill, and Birgham	x.	242	George P. Hughes, Esq.
June 27	Beal Half-way House, Holy Island, Lowlynn, Haggerston	x.	257	
July 25	Aberlady, Luffness, Haddington	x.	261	
Aug. 29	St. Mary's Loch, Yarrow Kirk, Rodono, Lake of the Lowes	x.	268	
Sept. 26	Middleton Hall	x.	279	
Oct. 10	Berwick	x.	284	
1884.				
May 29	Cornhill, Pallinsburn, Branxton, Ford, Duddo	x.	439	Capt. F. M. Norman R.N.

DATE.	PLACE OF MEETING.	VOL.	PAGE	PRESIDENT.
June 25	Farne Islands	x.	447	
July 30	Prestonkirk, Whittingham, Presmennan, Biel House	x.	461	
Aug. 29	Selkirk, Ettrick, Thirlestane Castle	x.	476	
Sept. 24	Newcastle-on-Tyne ..	x.	480	
Oct. 8	Berwick	x.	486	
1885.				
May 27	Jedburgh for Oxnam, and Oxnam District	xi.	10	Rev. Thomas Leish- man, D.D., F.S.A., Scot.
June 24	Rothbury, Cragside and Simonside Hills	xi.	31	
July 30	Houghton Castle, Simonburn Church, Chipchase Castle, North Tyne	xi.	50	
Aug. 26	Westruther and Wedderlee	xi.	64	
Sept. 30	Cockburnspath, Dunglass, Aikengall Ravines ..	xi.	77	
Oct. 14	Kelso	xi.	91	
1886				
May 26	Newbiggen - by - the - Sea, Woodhorn, Cresswell Hall	xi.	322, 333	Robert Middlemas, Esq.
June 30	Newtown St. Boswells, Dry- burgh, Mertoun, Maxton	xi.	326, 339	
July 28	Earlston, Carolside, Chapel- on-Leader, Whitslaid, Lauder, Muircleugh ..	xi.	328, 350	
Aug. 25	Peebles, Neidpath Castle, Stobo Church and Castle, Drummelzier Castle, Dawyck	xi.	329, 361	
Sept. 15	Hawick, Branxholme Hall, Chapelhill Forts, Harden	xi.	330, 386	
Oct. 13	Alnwick	xi.	399	
1887.				
May 25	Edrom, Blanerne, Broom- house, Duns Castle ..	xii.	13	Rev. David Paul, M.A.
June 29	Felton, Breneckburne, Long Framlington, Swarland, Newmoor House, Overgrass Peel, Newton-on-the-Moor	xii.	22	

DATE.	PLACE OF MEETING.	VOL.	PAGE	PRESIDENT.
July 27	Alwinton, the Drake Stone,			
	Harbottle, Holystone ..	xii.	38	
Aug. 31	Stow, Torsonce, Bowland ..	xii.	55	
Sept. 14	Jedburgh for Rule Water,			
	Weens, Wells, Bedrule ..	xii.	68	
Oct. 13	Berwick	xii.	76	
1888.				
May 30	Bridge of Aln, Edlingham,			
	Lemington, Broompark,			
	Bolton, Shawdon ..	xii.	176	Matthew T. Culley,
June 27	Kirknewton, Heathpool,			Esq.
	Coupland Castle ..	xii.	181	
July 27	Jedburgh, Minto, Chesters,			
	Ancrum, Monteviot ..	xii.	185	
Aug. 31	Holy Island ..	xii.	194	
Sept. 12	Canonbie, Mote of Liddle,			
	Penton Linns, Blinkbonny,			
	Gilnockie	xii.	204	
Oct. 10	Berwick	xii.	216	
1889.				
May 29	Glanton Pyke, Branton,			
	Ingram, Greave's Ash,			
	Linhope, Low Hedgeley	xii.	436	John Scott Dudgeon
June 26	Newcastleton to Saughtree,			Esq.
	Upper Liddesdale, &c.,			
	Saughtree to Kielder			
	Castle, and Headwaters of		454,	
	Jed and Rule	xii.	469	
July 31	Mindrum, Paston, Harelaw,			
	Shotton, Kirk Yetholm ..	xii.	481	
Aug. 28	Cranshaws	xii.	490	
Sept. 11	Beadnell, North Sunderland	xii.	497	
Oct. 9	Berwick	xii.	505	

ERRATA ET ADDENDA.

Page 438, line 35 from top, *for* "The Devil's Meal," *read* "The Devil's Oat-Meal."

Page 454, lines 3 and 4 from top : The Meeting of 1869 was held July 29.

Page 469 : The stone containing the Inscription is ~~said~~ to have come from Corby Hall, an old building on the estate, now destroyed.

Page 489, *note*, "Hesteroth at Kirk Yetholm," is mentioned as still extant, in Jeffrey's Hist. of Roxburghshire, I., p. 18.

Page 495, line 31 from top, *for* "thar," *read* "tharto."

Page 504, line 10 from top, *for* *centridotus*, *read* *centridontus*.

Page 507, line 24, *for* "Hartshorn," *read* "Hartshorne."

Page 511, line 15, *for* "JOHNSTON," *read* "JOHNSON."

BERWICKSHIRE NATURALISTS' CLUB.

LIST OF MEMBERS, DECEMBER, 1890.

	Date of Admission.
1. Frederick J. W. Collingwood, Glanton Pyke, Alnwick	May 6, 1840
2. John B. Boyd, Cherrytrees, Yetholm	Sep. 18, 1841
3. James Tait, W.S., Edenside, Kelso	July 26, 1843
4. William Brodrick, Little Hill, Chudleigh, South Devon	Sep. 20, ..
5. John Turnbull, Abbey St. Bathans, W.S., F.S.A., Scot., 58 Frederick Street, Edinburgh	" .. "
6. David Francis S. Cahill, M.D., Berwick	Oct. 18, 1849
7. Matthew J. Turnbull, M.D., Coldstream	June 30, 1852
8. William B. Boyd, Faldonside, Melrose	Oct. 12, 1853
9. Charles Stuart, M.D., Chirnside	Aug. 16, 1854
10. Charles Rea, Halterburn, Cleithaugh, Jedburgh ...	June 20, 1855
11. George Culley of Fowberry Tower, Office of H.M. Com- missioner of Woods and Forests, Whitehall Place, London	June 20, ..
12. Charles Watson, F.S.A., Scot., Duns	Oct. 20, 1856
13. Rev. Thomas Leishman, D.D., F.S.A., Scot., Linton, Kelso	" .. "
14. George P. Hughes, Middleton Hall, Wooler	" .. "
15. The Right Hon. Lord Tweedmouth, Brook House, Upper Brook Street, Park Lane, London; and Guisachan, Beaulieu	July 30, 1857
16. Patrick Thorp Dickson, Creagmhor, Aberfoyle, N.B.	Oct. 28, ..
17. John Wheldon, 58 Great Queen Street, Lincoln's Inn Fields, London, E.C.	Oct. 27, ..
18. Middleton H. Dand, Hauxley Cottage, Acklington	June 28, 1859
19. Stephen Sanderson, The Elms, Berwick	" .. "
20. Dennis Embleton, M.D., 19 Claremont Place, New- castle	" .. "
21. Charles B. Pulleine Bosanquet, Rock Hall, Alnwick	Sep. 29, ..
22. Robert Douglas, Solicitor, Berwick	June 28, 1860
23. Watson Askew-Robertson, Pallinsburn, Coldstream; and Ladykirk, Norham	Oct. 11, ..
24. Rev. Edward A. Wilkinson, M.A., Whitworth Vicarage, Spennymoor, Durham	May 30, 1861
25. Robert H. Clay, M.D., 4 Windsor Villas, Plymouth	" .. "
26. Charles Douglas, M.D., Woodside, Kelso	June 27, ..
27. Archibald Campbell Swinton, LL.D., F.R.S.E., F.S.A., Scot., Kimmerghame, Duns	" .. "

28.	Rev. Patrick George McDouall, M.A., Cosgrove Rectory, Stony Stratford	July 25, 1861
29.	Rev. Canon Greenwell, M.A., D.C.L., F.R.S., F.S.A., Hon. F.S.A., Scot., Durham	" "
30.	James Bowhill, Solicitor, Ayton	Sep. 26, "
31.	Dr. John Paxton, Berwick and Norham	" "
32.	Major Henry R. Hardie, Penquit, Torquay	June 26, 1862
33.	John Scott Dudgeon, Longnewton Place, St. Boswells	" "
34.	William Elliot, Sheriff-Clerk, Jedburgh	" "
35.	Rev. J. C. Bruce, LL.D., F.S.A., Framlington Place, Newcastle	July 31, "
36.	John Tate, Oaklands, Alnwick	" "
37.	Rev. Peter Mearns, Coldstream	" "
38.	William Crawford, Solicitor, Duns	Aug. 15, "
39.	Alexander Curle, F.S.A., Scot., Melrose	June 25, 1863
40.	John Edmond Friar, Greenlaw Walls, Norham	" "
41.	Francis Russell, Sheriff Substitute, Hollywood, Canaan Lane, Edinburgh	" "
42.	William Hilton Dyer Longstaffe, F.S.A., Gateshead	" "
43.	Robert Middlemas, Solicitor, Alnwick	" "
44.	James Hardy, LL.D., Oldcambus, Cockburnspath	" "
45.	Thomas Clutterbuck, Warkworth	July 29, "
46.	Thomas Tate, Allerburn, Alnwick	" "
47.	Rev. Adam Davidson, M.A., Yetholm	" "
48.	Major Robert Brown, Littlehoughton, Chathill	Sep. 29, "
49.	Rev. James Farquharson, D.D., Selkirk	June 29, 1865
50.	Thomas Allan, Horncliffe House, Berwick	" "
51.	James Smail, F.S.A., Scot., Commercial Bank, Edinr.	July 26, 1866
52.	Rev. H. M. Graham, Maxton, St. Boswells	Aug. 30, "
53.	Major The Hon. R. Baillie Hamilton, F.S.A., Scot., Langton House, Duns	Sept. 26, 1867
54.	His Grace The Duke of Northumberland, K.G., Alnwick Castle	June 25, 1868
55.	Robert G. Bolam, Berwick	Sep. 25, "
56.	James Brunton, Broomlands, Kelso	" "
57.	Major James F. McPherson, Melrose	" "
58.	Col. Francis Holland, Alnwick	" "
59.	James Heatley, Alnwick	" "
60.	Robert Romanes, F.S.A., Scot., Harryburn, Lauder	Sep. 30, 1869
61.	John Bolam, Bilton House	" "
62.	John Dunlop, Solicitor, Berwick	" "
63.	Pringle Hughes, Middleton Hall, Wooler	" "
64.	George L. Paulin, Berwick	" "
65.	Rev. David Paul, M.A., Roxburgh, Kelso	" "
66.	John Pringle Turnbull, Alnwick	" "
67.	James Wood, Woodburn, Galashiels	" "
68.	Rev. Thomas Brown, D.D., F.R.S.E., 16 Carlton Street, Edinburgh	May 11, 1871

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69.	Rev. Robert Paul, F.S.A., Scot., Dollar	...	Sep. 26, 1871
70.	Rev. T. S. Anderson, 44 Findhorn Place, Edinburgh	..	" "
71.	Rev. David W. Yair, Firth Manse, Finstown, Thurso	..	" "
72.	John Philipson, 9 Victoria Square, Newcastle	..	" "
73.	Rev. Ambrose Jones, M.A., Stannington, Cramlington	..	" "
74.	William Weatherhead, Solicitor, Berwick	...	" "
75.	Rev. H. E. Henderson, B.A., Alwinton, Morpeth	..	" "
76.	Alexander James Main, M.D., Alnwick	...	" "
77.	James T. S. Doughty, Solicitor, Ayton	...	Sep. 26, 1872
78.	Capt. J. Carr-Ellison, Hedgeley, Eglington	...	" "
79.	W. T. Hindmarsh, F.L.S., Alnbank, Alnwick	...	" "
80.	Lient.-Col. James Paton, Crailing, Jedburgh	..	" "
81.	Henry A. Paynter, Freeland, Alnwick	...	" "
82.	Major R. Thompson, Walworth Hall, Darlington	..	" "
83.	Rev. Evan Rutter, M.A., Spittal, Berwick	...	Sep. 25, 1873
84.	Col. David Milne Home, Paxton House, Berwick	..	" "
85.	Rev. Canon Waite, M.A., Vicarage, Norham	...	" "
86.	Rev. Beverley S. Wilson, B.A., Duddo, Norham	..	Sep. 24, 1874
87.	Major-General Sir William Crossman, K.C.M.G., F.S.A., M.P., Cheswick, Beal	... ..	" "
88.	F. M. Norman, Commander, R.N., Cheviot House, Berwick	... ..	" "
89.	James Hastie, Edrington Castle, Berwick	...	" "
90.	George Muirhead, F.R.S.E., F.Z.S., Mains of Haddo, Aberdeen	... ..	" "
91.	Thomas Henderson, M.A., Bedford County School, Bedford	... ..	" "
92.	John Freer, F.S.A. Scot., Solicitor, Melrose	...	Sep. 29, 1875
93.	J. A. Forbes, Commander, R.N., West Coates House, Berwick	... ..	" "
94.	David Watson, Hillside Cottage, Hawick	...	" "
95.	Adam Robertson, Alnwick	... ..	" "
96.	Charles Erskine, The Priory, Melrose	... ..	" "
97.	Arthur H. Evans, M.A., Scremerston, Berwick, and Cambridge	... ..	" "
98.	James Allan, Ava Lodge, Berwick	... ..	" "
99.	Rev. Joseph Hunter, M.A., Cockburnspath	...	" "
100.	Lient.-Col. Andrew Aytoun, R.A., Caledonian United Service Club, Edinburgh	... ..	" "
101.	Capt. Theodore Williams, Heatherslaw House, Cornhill	... ..	" "
102.	Rev. Canon Creighton, Professor of Ecclesiastical History, Langdale Lodge, The Avenue, Cambridge	..	" "
103.	T. W. McDowall, M.D., F.S.A., Scot., County Asylum, Cottingwood, Morpeth	... ..	" "
104.	John Halliday, 5 Holland Park, Bayswater, London, W.	..	" "
105.	Alexander Buchan, A.M., F.R.S.E., Sec. Met. Soc., Scot., 72 Northumberland Street, Edinburgh	..	" "

106.	Edward Ridley, 48 Lennox Gardens, London, S.W., Barrister-at-Law	Sep. 27, 1876
107.	Capt. Wm. Elliott Lockhart, Branxholme, Hawick	" "
108.	Rev. Geo. W. Sprott, D.D., North Berwick	" "
109.	Rev. Paton Gloag, D.D., Galashiels	" "
110.	James Brown, Viewfield, Selkirk	" "
111.	William Lyall, Literary and Philosophical Society, Newcastle	" "
112.	William Topley, F.G.S., Office of H.M. Geological Survey of England and Wales, 28 Jermyn Street, London	" "
113.	Hubert E. H. Jerningham, Longridge Towers, Berwick	" "
114.	Alexander Tower Robertson, Ravensdown, Berwick	" "
115.	Rev. W. Dobie, M.A., Ladykirk, Norham	" "
116.	Major James Hunter, Anton's Hill, Coldstream	" "
117.	Sir George Brisbane Douglas, Bart., Springwood Park, Kelso	" "
118.	Robert Richardson Dees, Wallsend, Newcastle	" "
119.	John Ferguson, Writer, Duns	" "
120.	Archibald Buchan Hepburn, Smeaton Hepburn, Prestonkirk	" "
121.	James Lumsden, F.Z.S., F.S.A., Scot., Arden House, Alexandria, Dumbartonshire	Oct. 31, 1877
122.	James Tait, Estates Offices, Belford	" "
123.	Isaac Bayley Balfour, Sc.D., M.B.C.M., F.R.S.E., F.L.S., F.G.S., Professor of Botany, Royal Botanic Gardens, Edinburgh	" "
124.	Robert Mason, F.L.S., 6 Albion Crescent, Dowanhill, Glasgow	" "
125.	Rev. Charles E. Green, B.A., Howick Rectory, Lesbury, R.S.O.	" "
126.	Thomas Chas. Hindmarsh, Barrister-at-Law, 1 Essex Court, Temple, London	" "
127.	Rev. R. Hopper Williamson, M.A., Whickham, Gateshead	" "
128.	W. H. Johnson, Tweed Villa, Relugas Road, Edinburgh	" "
129.	Rev. Walker Featherstonhaugh, M.A., Edmondbyers, Blackhill, Co. Durham	" "
130.	Lowrey Calvert Chrisp, Hawkhill, Alnwick	" "
131.	Col. Matthew Charles Woods, Holeyn Hall, Wylam	" "
132.	George H. Thompson, Alnwick	" "
133.	William Lang Blaikie, Holydean, St. Boswells	" "
134.	Captain John Broad, Ashby, Melrose	" "
135.	Dr. Denholm, Broomhill, Duns	" "
136.	Rev. J. Mackenzie Allardyce, D.D., Bowden, St. Boswells	" "

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137.	Dr. E. C. Robertson, Otterburn, Newcastle	...	Oct. 31, 1877
138.	William Wilson, B.A., Hidehill, Berwick	...	" "
139.	The Right Hon. The Earl of Haddington, Tynningham House, Prestonkirk	... ..	" "
140.	Peter Loney, Marchmont, Greenlaw	... ..	Oct. 16, 1878
141.	William A. Hunter, M.A., LL.B., Solicitor, Duns	...	" "
142.	Thomas Darling, Palace Street, Berwick	...	" "
143.	Rev. John Walker, Whalton, Newcastle	...	" "
144.	Arthur Thew, Belvedere Terrace, Alnwick	...	" "
145.	John Russell, 23 Dick Place, Edinburgh	...	" "
146.	J. K. Weatherhead, Solicitor, Berwick	... ..	" "
147.	James Greenfield, Reston	... ..	Oct. 15, 1879
148.	James Mein, Lamberton	... ..	" "
149.	George Skelly, Alnwick	... ..	" "
150.	Rev. Canon Tristram, D.D., F.R.S., F.S.A., Durham	... ..	" "
151.	Thomas Cook, Solicitor, Alnwick	... ..	" "
152.	Charles M. Adamson, North Jesmond, Newcastle	...	" "
153.	Rev. George Gunn, Stichell, Kelso	... ..	" "
154.	Thomas Craig-Brown, Woodburn, Selkirk	...	" "
155.	Rev. Robert Small, Caddonfoot, Galashiels	...	" "
156.	Rev. A. Duncombe Shafto, M.A., Brancepeth Rectory, Durham	... ..	" "
157.	J. J. Vernon, F.S.A., Scot., Hawick	... ..	" "
158.	Robert Henry Elliot, Clifton Park, Kelso	...	" "
159.	J. W. Barnes, Banker, Durham	... ..	" "
160.	George Bolam, Berwick	... ..	" "
161.	James Thomas Spencer Elliot, Wolfelee	...	" "
162.	Thomas Rutherford, M.D., Kelso	... ..	" "
163.	John Crawford Hodgson, Buston Vale, Lesbury	...	Oct. 13, 1880
164.	John Broadway, Banker, Berwick-on-Tweed	...	" "
165.	Major Shallcross Fitzherbert Widdrington, Newton Hall, Alnwick	... ..	" "
166.	Rev. William Snodgrass, D.D., Canonbie, Dumfriesshire	... ..	" "
167.	Rev. Charles Cowan, B.D., F.S.A., Scot., Morebattle, Kelso	... ..	" "
168.	Rev. Canon Ilderton, M.A., Ingram, Alnwick	...	" "
169.	Thomas Walby, Alnwick	... ..	" "
170.	William Alder, Hallidon House, Berwick	...	" "
171.	Robert Weddell, Solicitor, Berwick	... ..	" "
172.	The Right Hon. Lord Napier and Ettrick, K.T., Thirlestane, Selkirkshire	... ..	Oct. 12, 1881
173.	William Craig, M.D., C.M., F.R.C.S.E., F.R.S.E., 7 Bruntsfield Place; and Surgeons' Hall, Edinburgh	... ..	" "
174.	Robert Hutchison, F.R.S.E., F.S.A., Scot., Carlowrie, Kirkliston, and Barnhill, Brodick, Isle of Arran	...	" "

175.	James S. Mack, S.S.C., Coveyheugh, Reston, and 1 Hanover Street, Edinburgh	...	...	Oct 12, 1881
176.	The Most Hon. The Marquess of Tweeddale, Yester House, Haddington	...	...	" "
177.	Edward Johnson, M.D., Tweedbank, Kelso	...	...	" "
178.	Edward Willoby, junr., Berwick	...	...	" "
179.	Joseph Wilson, Solicitor, Duns	...	...	" "
180.	William Madden, British Linen Co.'s Bank, Berwick	...	...	" "
181.	William Thompson Hall, Dunns Houses, Woodburn	...	...	" "
182.	Hugh Miller, F.G.S., Geological Survey Office, George IV. Bridge, Edinburgh	...	...	" "
183.	James Lesslie Newbiggin, Alnwick	...	...	" "
184.	George Bird, 48 Princes Street, Edinburgh	...	...	" "
185.	Rev. John Dobie, M.A., B.D., Secunderabad, India	...	...	" "
186.	James Cumming, Banker, Jedburgh	...	...	" "
187.	T. D. Crichton Smith, Solicitor, Kelso	...	...	" "
188.	John Henderson Wright, M.B., C.M., Colville House, Kelso	...	...	" "
189.	Edward Tennant, yr. of The Glen, Innerleithen	...	...	" "
190.	Stevenson Macadam, Ph.D., F.R.S.E., F.C.S., F.I.C., etc., Lecturer on Chemistry, Surgeons' Hall, Edinburgh	...	...	" "
191.	Adam Darling, Governor's House, Berwick	...	...	" "
192.	A. L. Miller, 11 Silver Street, Berwick	...	...	" "
193.	Thomas Fraser, M.D., Berwick	...	...	" "
194.	Alexander Bowie, Canonbie, Dumfriesshire	...	...	Oct. 11, 1882
195.	Lieut.-Col. Alexr. Murray Brown, Longfarmacus House, Duns	...	...	" "
196.	The Most Hon. the Marquess of Lothian, K.T., Monteviot, Roxburghshire	...	...	" "
197.	Robert Stephenson, Chapel, Duns	...	...	" "
198.	Rev. W. D. Herald, B.D., Duns	...	...	" "
199.	Robert Robertson, Ladyrig, Roxburgh	...	...	" "
200.	John S. Bertram, Cranshaws, Duns	...	...	" "
201.	William Gunn, Duns	...	...	" "
202.	James Parker Simpson, Ravensmede, Alnwick	...	...	" "
203.	Dr. Allan Wilson, Alnwick	...	...	" "
204.	The Right Hon. the Earl of Home, Hirsell, Coldstream	...	...	" "
205.	George Bulman, Corbridge-on-Tyne	...	...	" "
206.	David Dippie Dixon, Rothbury	...	...	" "
207.	John Turnbull, Ettrick View, Selkirk	...	...	" "
208.	Adam Cochrane, Fernieknowe, Galashiels	...	...	" "
209.	James J. R. Storer, Alnwick	...	...	Oct. 10, 1883
210.	Rev. Matthew Culley, Coupland Castle, Wooler	...	...	" "
211.	Thomas Greig, Wester Wooden, Kelso	...	...	" "
212.	John G. Winning, Braxholme Knowe, Hawick	" "
213.	James Thomson, Shawdon, Alnwick	" "

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214.	James Thin, junr., South Bridge, Edinburgh	...	Oct. 10, 1883
215.	Robert Shirra Gibb, M.B.C.M., Boon, Lauder	...	" "
216.	Col. James Edward Forster, Sanson Seal, Berwick	...	" "
217.	William Robertson, Alnwick	...	" "
218.	Richard Burdon Sanderson, Budle House, Beiford	...	" "
219.	Henry Rutherford, Fairnington, Kelso	...	" "
220.	Rev. A. E. Langston, Hebburn Vicarage, Newcastle	...	" "
221.	Rev. Canon Edmunds, Kylee Vicarage, Beal	...	" "
222.	Alfred Morall Appleton, 12 Elvet Bridge, Durham	...	" "
223.	James Nisbet, Lambden, Greenlaw	...	" "
224.	Edward A. L. Batters, B.A., LL.B., F.L.S., 5 Pump Court, Temple, London, E.C., and The Laurels, Wormley, Herts	...	" "
225.	Rev. Robert Borland, Yarrow, Selkirk	...	" "
226.	John McNaught Campbell, Kelvingrove Museum, Glasgow	...	" "
227.	Rev. Charles Blackett Carr, West View, Morpeth	...	Oct. 20, 1884
228.	David Robertson Dobie, M.D., Coldstream	...	" "
229.	John Hunter, H.M. Inspector of Schools, Alnwick	...	" "
230.	Robert Amos, Aydon Gardens, Alnwick	...	" "
231.	Charles Percy, Alnwick	...	" "
232.	John H. Haliburton, Jed Bank, Jedburgh	...	" "
233.	C. Lisle Stirling Cookson, Renton House, Grant's House	...	" "
234.	David W. B. Tait, W.S., Edenside, Kelso	...	" "
235.	Evan George Sanderson, Castle Hill Cottage, Berwick	...	" "
236.	Dr. Thomas Anderson, Ettrick Shaws, Selkirk	...	" "
237.	James Logan Mack, Coveyheugh, Reston	...	" "
238.	Delaval Knight Gregson, Berwick	...	" "
239.	William Green, Berwick	...	" "
240.	Rev. A. O. Medd, M.A., Whitton Tower, Rothbury, Morpeth	...	" "
241.	John E. Bell, Alnwick	...	" "
242.	George Henderson, Shidlaw, Coldstream	...	" "
243.	Charles S. Romanes, 46 Hanover Street, Edinburgh	...	" "
244.	Edmond John Jasper Browell, J.P., East Boldon, Sunderland	...	" "
245.	Robert Yeoman Green, 6 Grey Street and 11 Lovaine Crescent, Newcastle	...	" "
246.	George Hare Philipson, M.D., D.C.L., M.A., 7 Eldon Square, Newcastle	...	" "
247.	David Herriot, Castle Terrace, Berwick	...	" "
248.	Joseph Oliver, Eslington Park, Alnwick	...	" "
249.	Colonel Sir William Ramsay Fairfax, Bart., Maxton	...	" "
250.	Michael Muir, Fernlea, Selkirk	...	" "
251.	Alexander F. Roberts, Manor Hall, Selkirk	...	" "
252.	D. C. Alexander, Selkirk	...	" "

253.	Alexander C. McIntyre, F.S.A., Scot., 99 Renfield Street, Glasgow	Oct. 20, 1884
254.	Lieut.-Genr. John Sprot, of Riddell, St. Boswells	" "
255.	James Dand, Eglingham Hall	Oct. 14, 1885
256.	Rev. James Stark, B.A., St. Cuthbert's Church, North Shields	" "
257.	Rev. James L. Blake, M.A., Langton, Duns	" "
258.	John Simson, Oxnam Row, Jedburgh	" "
259.	James Gibson, Gunsgreen, Eyemouth	" "
260.	Thomas Elliot Boog, Camborne, Cornwall	" "
261.	David Leitch, Greenlaw	" "
262.	George Henderson, M.B., C.M., Coldstream	" "
263.	Rev. Edward Hussey Adamson, St. Alban's Vicarage, Felling, Gateshead	" "
264.	David Ross Stewart, LL.B., Advocate, 18 Duke Street, Edinburgh	" "
265.	John Hogg, Quixwood, Grant's House	" "
266.	Abraham Burbery Herbert, 13 Polwarth Terrace, Edinburgh	Oct. 13, 1886
267.	Commander Henry C. Bigge, R.N., 66 Church Road, St. Leonards-on-Sea	" "
268.	George Currie, Puckawidgee, near Deniliquin, New South Wales	" "
269.	William G. Guthrie, Marlfield Cottage, Hawick	" "
270.	Andrew Waugh, High Street, Hawick	" "
271.	Rev. George Rome Hall, F.S.A., Birtley Vicarage, Wark-on-Tyne	" "
272.	William Evans, F.R.S.E., 18a Morningside Park, and 9 St. Andrew's Square, Edinburgh	" "
273.	Archibald Miller Dunlop, Schoolhouse, Ashkirk, Hawick	" "
274.	Thomas Tomlinson, Bailiffgate, Alnwick	" "
275.	James Dodds, Schoolhouse, Mertoun, St. Boswells	" "
276.	Rev. Thomas Martin, Lauder	" "
277.	W.N.Strangeways, 59 Westmoreland Road, Newcastle-upon-Tyne	" "
278.	Wm. Ivison Macadam, F.I.C., F.C.S., etc., Professor of Chemistry, New Veterinary College, Analytical Laboratory, Surgeon's Hall, Edinburgh	" "
279.	David Fraser, Grammar School, Selkirk	" "
280.	Richard H. Dunn, Earlston	" "
281.	Rev. T. A. Holcroft, Vicarage, Mitford, Morpeth	" "
282.	John Mackenzie, Bank Agent, Earlston	" "
283.	James Oliver, Thornwood, Hawick	" "
284.	Walter Philips Kennedy, Hawick	" "
285.	George Tancred, Weens, Hawick	" "
286.	Right Hon. Edward Marjoribanks, M.P., Ninewells House, Chirnside	Oct. 12, 1887

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285.	Robert Cecil Hedley, Corbridge-on-Tyne	...	Oct. 12, 1887
286.	Rev. P. B. Gann, Oxnam, Jedburgh	" "
287.	George Fortune, Duns	... ..	" "
288.	Rev. Macduff Simpson, M.A., Edrom, Duns	..	" "
289.	Edward Thew, Birling House, Warkworth	...	" "
290.	Benjamin Morton, Azalea Terrace, Sunderland	...	" "
291.	Rev. William Workman, Stow	.. ..	" "
292.	Dr. Stewart Stirling, 67 Clifton Terrace, Edinburgh		" "
293.	F. Elliot Rutherford, 81 High Street, Hawick	...	" "
294.	Lonis Stevenson, Mount Ulston, Jedburgh	...	" "
295.	Thomas Simson, Commercial Bank, Jedburgh	..	" "
296.	Robert Carr Bosanquet, Rock, Alnwick	...	" "
297.	James Joicey, M.P., Longhirst, Morpeth	...	" "
298.	Rev. William C. Callander, Ladhope, Galashiels		" "
299.	Col. Ralph Ellison Carr, Dunston Hill, Whickham, R.S.O.	... ..	" "
300.	Rev. Canon J. S. Wilsden, Vicarage, Wooler	.	" "
301.	Major-Gen. J. J. Boswell, C.B., Darnlee, Melrose		Oct. 10, 1888
302.	Hugh Macpherson Leadbetter, Legerwood, Earlston	... ..	" "
303.	Rev. George Cook, Longformacus, Duns	...	" "
304.	Sir Edward Grey, Bart., M.P., Falloden	...	" "
305.	Ralph Galilee Huggup, Gloster Hill, Warkworth		" "
306.	John Turnbull, 51 High Street, Hawick	...	" "
307.	John Roscamp, Shilbottle Colliery, Lesbury	...	" "
308.	Rev. W. D. La Touche	... ..	" "
309.	John Thomas Carse, Amble, Acklington	...	" "
310.	Edward Fisher, F.S.A., Scot., Abbotsbury, Newton Abbot, South Devon	... ..	" "
311.	George Wood, Exchange Buildings, Jedburgh	...	" "
312.	James D. Strang, Jedburgh	... ..	" "
313.	Thomas Smail, Jedburgh	... ..	" "
314.	Rev. James Marshall Lang Aikin, Ayton	...	" "
315.	T. B. Short, 21 Quay Walls, Berwick	...	" "
316.	Matthew Mackey, 8 Milton Street, Newcastle	...	" "
317.	William John Robinson, Newmoor House, Morpeth		" "
318.	Robert Mowat, 3 Spence Street, Edinburgh	..	" "
319.	R. T. N. Howey-Taylor, Beadnell House, Chathill		" "
320.	Lient.-Col. Anthony Marshall, Annstead, Chathill		" "
321.	Thomas Mathison, Wandylaw, Chathill	...	" "
322.	Richard Archbold, Alnwick	... ..	" "
323.	George Bolam, Bilton House, Lesbury	..	" "
324.	James Stevenson, Architect, Berwick	... ..	" "
325.	Rev. Charles F. Thorp, Beadnell Vicarage, Chathill		Oct. 9, 1889
326.	H. Hewat Craw, West Foulden, Berwick	...	" "
327.	Major A. H. Browne, Callaly Castle, Whittingham		" "
328.	Capt. Walter Macmillan Scott, Wauchope, Hawick		" "
329.	John Cay, W.S., 10 Alva Street, Edinburgh		" "

List of Members.

330.	George Logan Broomfield, Writer, Lauder	...	Oct. 9, 1889
331.	Lieut.-Col. Rowley R. C. Hill, Lowlynn, Beal	...	" "
332.	Lieut. Gerard F. Towler, Leather, Middleton Hall, Belford	" "
333.	The Right Hon. Earl Percy, Alnwick Castle	...	" "
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Bolton, 176.
Woodhouses Peel, 46.
Woodpecker, Greater Spotted, 532,
536.
Wooler, 399, 400; Barony, 400, 401,
402, 403, 404.
Wormescleugh, 473, 474.
Wyderington, Gerard de, 406.
Wytley, 139; and Wyteleys, 140.
Yardhope or East Wilkwood Lime-
stone, Analysis of, 54-5.
Yarrow, near Falstone. Fir-tree
Moss at, 475.
Yarum, Yarm on Tees Manor, 401,
403.
Yesington, *see* Wessingham.
Yetholm, 484, 485; Gypsies and
Kirk, 488.
Yevering, 406.
Yucca gloriosa, flowering of, 500.

Pres.
6 OCT. 91



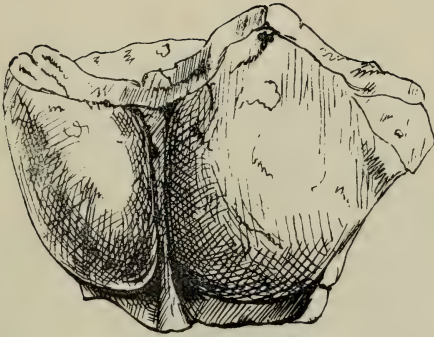


FIG. 1.

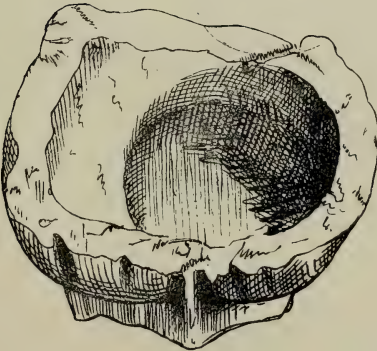
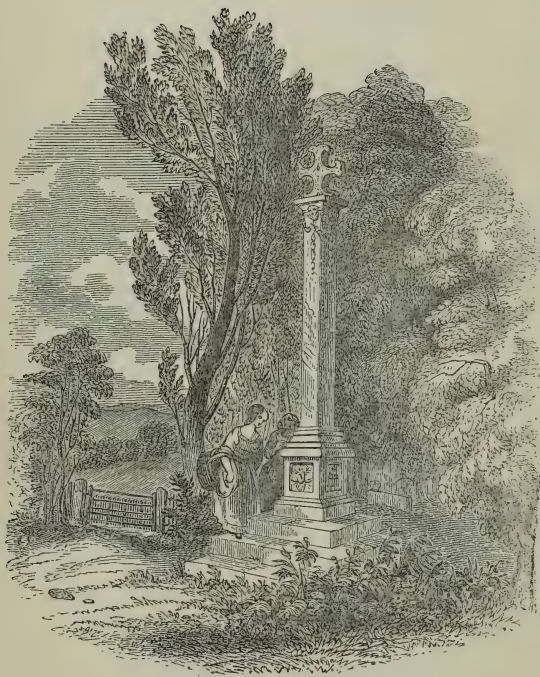


FIG. 2.

MORTAR FOUND NEAR ST. LEONARD'S HOSPITAL.



[PLATE XIII.]



MALCOLM'S CROSS.

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